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INDIAN RAILWAY ECONOMICS

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INDIAN RAILWAY ECONOMICS

PART I

BY

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AND " FREIGHT YARDS, TERMINALS AND TRAINS, ETC., ETC."]

SECOND EDITION

(Thoroughly Revised)

PUBLISHED BY THE

UNIVERSITY OF CALCUTTA

1927

PRINTED BY BHUPENDRALAL BANERJEE
AT THE CALCUTTA UNIVERSITY PRESS, SENATE HOUSE, CALCUTTA.

Reg. No. 265B.—August, 1927.—E.

Dedicated

To

My Affectionate Daughters

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CHAPTER I

Railway Finance

THE first Railways that came into existence in the world were the outcome of private enterprise, who financed, built and managed the Railways. The entire risk or responsibility for finance was that of the Companies, formed by private individuals without no monetary help from the Government.

Although the benefits to a country, where Railways are made, are great, no credit is given to Railways, for anything else than what they earn by carriage of passengers and goods. Through the advent of Railways the Government or the public treasury receives taxes from industries, which again could not exist were it not for Railways. The increased value of land, the gain to the cultivators by greater sale of their products, and consequent gain to the merchants, and the increased land revenue to the Government all come through Railways; and, further, in calculating the benefits, which accrue owing to coming of Railways the difference between the price actually paid by the consumers and the price which they would have had to pay had the goods been carried by roads, by carts or horse wagons ought to be taken into account as well. Moreover, the state gets concessional rates of carriage for conveyance of mails, Government stores, military traffic, and thus though Railways may be provided out of private funds, and through private on joint stock companies, the benefits to a country through Railways are manifold.

In Great Britain, the Railway promoters, who built the first Railways in the world, were private individuals and had formed companies for purposes of financing, building and managing the Railways. They received no financial assistance from the Government either in the shape of an advance of a portion of the money on account of capital, or loans, or a guarantee of minimum dividend on the money invested by the companies. On the other hand, they had to spend large sums of money in their endeavours to get the bills sanctioning the Railways passed through the Houses of Parliament, and, in buying land required for the building of Railways. The compensation the Railways had to pay to the land owners was very heavy.

In certain countries, however, the Government granted advances of money on account of capital or gave loans, and when Railways were opened and began to earn money the first charge against annual Railway nett earnings (*viz.*, gross earnings minus the working expenses) was the yearly instalment payable to the Government on account of redemption of loans or advances. In other countries, the Government gave free gifts of land to Railway companies in the commencement of the Railway era, and in certain countries the private investors, or companies, received assurance of a guaranteed minimum dividend, and, whenever there was a deficit between the dividend obtainable on the actual nett receipts and the minimum percentage of dividend guaranteed the deficit was made good by the Government. In many cases, Railways provided out of Government funds were made over to companies for purposes of working and the contracts were so drawn as to make the lessor and the lessee of the Railways into real partners, both possessing an interest in the steady advance of the business and in the nett revenues of the concern.

A Railway founded by a private concern is run more or less exactly on the same lines as a joint stock company owned industrial concern, and thus a Railway company looks to a steady and advancing return on the capital outlay. A sound property, a stable financial policy and efficient management are essential factors of success, and to ensure continued success of a permanent nature it is necessary that all repairs and renewals to a property should be made in time, and, also that extensions to and improvements in the property, to meet ever increasing demands of public needs, should be effected in due time. It is necessary for all these purposes to provide for adequate reserve and depreciation funds, the latter to meet expenses of such renewals and repairs as are required from time to time and are due to ordinary wear and tear and age, and the former to provide for emergencies and substantial and extensive improvements. A reserve fund and a depreciation fund on an adequate scale avoid debts or raising of further capital when repairs, renewals, substantial improvements to an existing property become due. Of course, to provide for improvements or additions of a very substantial nature, involving the spending of large sums of money, new or further capital has to be raised or loans have to be incurred and in the case of the latter provision of sinking funds, to repay the loans, when their redemption becomes due, also becomes necessary.

It is a false gain when large dividends are declared without any provision being made for reserve, depreciation or sinking funds, and when such is the case it is certain that at not a very distant date either there will be no dividends at all, at least for some years, or large loans will have to be incurred for the rehabilitation of the Railway property which will mean inflation of capital expenditure or of the loan account and will, consequently, mean very low dividends. It is, therefore, much the best thing to have

the Railway property always kept up-to-date and in a thorough state of repairs and to have funds provided out of the revenues to meet renewals and improvements. If these were done the result will be that there will be a steady dividend which may not be very large in the beginning, but if the bulk of the repairs, renewals and improvements are provided out of revenue, the natural and eventual result will be a higher dividend in the long run, because more traffic will be carried and more money will be earned though improvements and additions made out of depreciation and reserve funds created out of the revenue instead of by the raising of any fresh capital or out of loans.

Now the Railways of U. S. A. are commercial concerns of gigantic magnitude. Let us see how they were financed. In the case of company owned Railways of U. S. A. the position was described to be as follows :—

"The Railways of U. S. A. may be broadly divided into two classes, namely—

(A) Those in which the shares are held by numerous stock holders, none of whom has a prepondering interest in the property.

(B) Those in which a prepondering number of shares is held by a few individuals."

When the prepondering interest in a Railway or an industrial concern is held by a few rich financiers, it may so happen, and in some cases it does happen, that they charge most of the (and even expensive) improvements to revenue or income account, and the balance sheets of such Railways naturally do not show handsome dividends, which, however, is not always the case with the stock holders of small holdings individually when they have most of their savings invested in several industrial concerns and are dependent to a certain extent on the dividends they can get

from their investments. In the latter case the tendency is to ask for larger dividends. The advantage of the former is that owing to a few millionaires controlling the destinies of a concern they can afford to be content with smaller dividends per unit, at least in the stage when large sums are needed for improvements, betterments, etc. Thus the public get a sound and improved property the business of which to render service. And as this is effected without much increase in capital expenditure the tendency is to look to small profit per unit and to charge cheap rates and fares in order to attract large amount of business so that small profit per unit on a big amount of business may bring in a large gain in the long run.

But there are evils of the monopoly of a few private capitalists in Railway ownership because it takes out of the hands of the public control of works of great public utility. For instance in U. S. A. the Railways and other industries have fallen into the hands of a few persons who have grown fabulously rich. It is true that the Americans as a nation are richer than any other, but it is also true at the same time that the number of millionaires and multimillionaires in that country are the effects of monopolistic financial groups. They own the financial banks, who in their turn finance the local banks and industries and the Railway capital is controlled to a large extent by such groups. At one time the "trusts" were regarded as a source of great danger because the tendency of such trusts was to dominate the business of the country so that in spite of democracy in the Government of U. S. A., there was a sort of autocracy in business concerns in that country. However, safeguards have been provided, and the Federal Government has got very strict and powerful control over the rates and fares of and service rendered by the Railways and the control is increased by the Interstate Commerce Commission.

Also if Railways are the property of the state and are run as great public works they ought to be run on these lines as well, but the latest history of the German State Railways, the Spanish Railways and of other continental Railways have shown that without commercial management there is considerable amount of wastage due to Railways being overstaffed and extravagantly run, which eventually led to bankruptcy and introduction of company management. State-ownership and State-management ought to avoid the evils of monopoly of private capitalists, but there are other even greater dangers. It is stated and has been realised in some cases that there is a great deal of truth in the saying that "under a democratic constitution State Railways corrupt politics and politics corrupt State Railways." Thus private ownership and Government control are found to be more suitable in England and America because recent experience in Europe has shown that State Railway systems are not a great financial success.

Anyhow, a Railway is a public concern or rather a concern of great public utility even when owned by private companies. This being so it is recognised throughout the world that the Government should exercise some sort of control and check over the finances of a Railway with a view to see that its financial condition is sound, because unless the financial condition of Railways is sound they could neither render good service nor give cheap rates and fares for a continuous period. First and foremost, it is important that a Railway is not expensively built nor is it advisable that a Railway should be built so cheaply as not to be able to render that service which it is expected to give to the public. Then it is equally important to see that the Railway management and operation are not extravagant and that there is sufficient money to meet its obligations, *i.e.*, such obligations as should be met out of its revenue. No money in a Railway can be

said to have been wisely spent unless there is a direct profit on the money invested, and, therefore, the actual requirements of a Railway and the money that would be necessary to fulfil all such requirements should be very properly estimated, and the construction of a Railway should never be allowed to be started unless and until there is a security that all the money that would be required to build and equip the Railway, according to estimate already made, would be readily and timely available, or else the successful completion of the enterprise would be endangered. And above all, it is essential that estimates of the traffic that the Railway would get to carry and of the earnings should be carefully made and it should be seen that there is no optimism about these. This having been done the next important thing is to see that in the preparation of construction estimates of a Railway all expenditure on costly elaborations and on non-productive works are avoided. According to the views of some of the American Economists, substantially built tracks and say double set of rails, for up and down traffic, heavy structures and buildings should be kept in abeyance and temporary and cheaper and lighter things might be provided instead, unless it is certain that the expenditure on more substantial and heavier lines and structures would be more than repaid by the Railway getting as much traffic as it would want to pay for such expenditure in the near future. But at the same time it is to be carefully observed that there is no false economy which would entail heavy expenditure in the long run, such as bad alignment of a Railway (which does not directly serve important towns or marts), in order to avoid heavy expenditure on land or heavy embankments or cuttings, etc.

In short, the success of a Railway depends first on the judgment formed, as the result of very careful

investigation, in the selection of the route of the Railway and the part of the country through which this Railway would be built, and, secondly, on the skill with which the Railway is built with the intention of securing the maximum amount of traffic expected to be carried in the near future with minimum of expenditure in carrying that traffic.

One can do no better than to quote the following from Wellington's Economic Theory of Railway Location:—

" In other words, reduction of first cost to the lowest possible point is in logical or economic order, the first consideration ; although therefore not by any means either the most important or the governing consideration. That this is so is easily seen, however often forgotten. It is not only business like common-sense for the investors and their servants, but it is sound political economy for the community as a whole. It does not mean nor imply cheap and shabby construction. It simply means **An Avoidance of Waste**, either in saving money or spending it. It simply means a recognition of the fact that every dollar and everyday's work which goes into the ground and does not bring something out of it, makes not only the individual but the whole community the poorer. The welfare of all mankind, as well as of investors in the enterprises which employ engineers, depends upon the skill with which the investment in its constructive or manufacturing enterprises (destruction of existing capital) is kept small, and the productive or earning power (creation of new capital) is made large. The difference between the two is the so-called "profit" (net addition to existing capital), which goes indeed into the control of those who created it by perceiving the (supposed) opportunity or necessity and using their own means at their own risk to supply it: but it is not, therefore, for the true interest of any person or class to make it less by increasing

the investment, for otherwise there is waste which, as it benefits no one, indirectly injures all. Not even the labourer who uses up a portion of the wasted capital is really the gainer; for if, on the one hand, the capital spent (*i.e.*, destroyed) for construction or plant be needlessly large, although the poor man gains, for the time being, wages which he would not otherwise receive from that particular enterprise, yet it is as if he were paid wages to turn a crank which ground no grist—his time and his work go for naught. If he spend half his time in this way he must, in the long run, do two days' work for the wages of one—a condition which is nearer to existing in Railway enterprises than is always realised or admitted.

* * * *

On the other hand, if the proper margin of profit has been reduced by reckless and costly economies, no one gains even the semblance of benefit, while both the projectors and the patrons of the enterprise are heavy losers—the projectors in money, the patrons in convenient service.

These two vital truths, therefore, which directly result from what has preceded, should never be forgotten; that because a line will have or is expected to have a prosperous future (because, perhaps, it is to be built by the State for great reasons of State, or for any other reason will have plenty of money in the treasury) there is, therefore no justification in that fact alone for making it a costly road as well.

On the other hand, no road is so poor that it can afford to economize when certain additional expenditure will be clearly very profitable."

Having so far touched the general aspect of Railway Finance, mainly from Railway and Commercial points of view it would now be useful if we next come to the

question of Railway Finance in India, which had peculiar conditions of its own. The Railways made in India were, in the first instance, the property of the British Companies constructing them, to whom the Court of Directors of the late East India Company and the Secretary of State for India had from time to time granted leases of the land required for their undertakings, usually for ninety-nine years, with the option of buying the property of most of the companies at the end of twenty-five years after the dates of the contracts. The Government had also undertaken to pay to the Companies in London, during their leases, interest at fixed rates (usually five per cent.) on their capital. The contracts with these companies provided that the sums paid by Government in excess of the net traffic receipts on account of guarantee of interest should be treated as a debt, due to Government, to the repayment of which, with simple interest at 5 per cent., one moiety of any net earnings in excess of the guaranteed interest was to be applied. But many years elapsed before the net earnings of any one Railway amounted to the figure of guaranteed interest, so that large arrears of interest due to Government accumulated which had to be cancelled at the time of purchase of the Railways by the Government.

The Government also undertook to receive all receipts and pay, all disbursements of the companies in India in rupees, accounting to the companies in England in sterling at the following fixed rates of exchange :—

Oudh and Rohilkhand Railway	2s. per Rupee
South Indian Railway ...	1s. 11d. per Rupee
All the rest	1s. 10d. per Rupee

The loss to the Government on account of the actual and contract rates of exchange proved considerable. Above all, the Government was bound to pay a fixed rate of

interest, whatever were the outlay and the results of the undertakings. There was thus no incentive to the companies to look to economy in constructing or working the Railways. As these terms proved very onerous and disadvantageous to the Government, the earliest opportunity was taken by the Government to avail themselves of the provisions of the contracts under which those lines could be purchased either by cash payment or by means of annuities terminable after a number of years. At the time of purchase premiums to the extent of 20 to 25 per cent. over and above the par value of the shares had to be paid to the companies and this inflated the Capital expenditure now shown in the Capital accounts of the Indian Railways. Although the North Western, the Oudh and Rohilkhand and the E. B. Railways were retained, after their purchase, to be worked by direct state agencies, most of the other Railways such as the East Indian, the Great Indian Peninsula, the Bombay Baroda and the Madras Railways were entrusted back to working companies under fresh contracts, the terms of which were much more favourable to the Government than were in the case of the old guaranteed companies. The position of the Government with respect to these companies was that the Government was the owner and lessor of the lines and the companies were the working agents or lessees.

The broad features of the fresh contracts entered into with such companies were :—

(1) that the company were to have a small amount of share capital in the concern on which interest at rates varying from 2 to 3½ per cent. was guaranteed by the Secretary of State out of the revenues of India,

(2) that in addition the company were to receive a small share of the surplus profit earned by the Railway after meeting all payments for interest on the capital at charge, such share being based either on some fixed

proportion or on the amount of capital contributed by the Government and the company, respectively ; this arrangement gave incentive to the companies to so work the Railways and to develop the traffic as to be able to earn surplus profits,

(3) that all transactions were to be taken to account at the actual rate of exchange of 1s. 4d. to the Rupee,

(4) that the Company were to keep the undertaking, its rolling stock, etc., in thorough repair and in good working condition to the satisfaction of the Secretary of State,

(5) that on the termination of the contract the Government were to repay to the working Company the amount of its share Capital *at par*.

It would thus be seen that the Government in addition to their interest in the correct division of profits were also concerned to see that the property of which they were the owners was kept in good condition and repair, and that all fresh capital put into the line was profitably and economically spent.

Besides the Railways purchased from the old British Companies some Railways had been originally built by the state while others were built by companies mostly out of funds provided for by the Government. The former were known as state owned and state built Railways and the latter as "assisted Railways" ; in most cases both were leased to companies for working on somewhat the same terms as those mentioned in the foregoing paragraphs.

After date of purchase of Railways by the Government and in respect of the other lines just mentioned money for capital expenditure was provided for by the Government as follows :—

(1) Out of surplus of general revenues of the Government and cash balances.

(2) By raising of capital by the Government in Rupee loan in India; or by Sterling loan in England; or

(3) By issue of the debentures in England on the guarantee of the Secretary of State for India.

(4) Savings Bank Deposits.

(5) Appropriation from Famine grant for avoidance of debt.

(6) Half profits on Rupee coinage.

It might be explained here that there was a difference between ordinary debentures and Indian Railway debentures issued in England Debentures ordinarily mean a borrowing on mortgage of property to the extent of the borrowing, but in the case of Indian Railway debentures there is no mortgage of the particular Railway property, in respect of which debentures were issued.

The debentures were, however, guaranteed by the Secretary of State for India. So the debenture holders had a greater security than even the mortgage of Railway property. They had the security of the Secretary of State for India, consequently of India and her resources.

Now to deal with the allocation of expenses between Capital and Revenue as it used to be some years ago. In regard to allocation of funds between Capital and Revenue Accounts the principle laid down was that the capital account was to bear the cost of new works, of additional rolling stock, plant and machinery, and substantial improvements or of additions to old works, rolling stock, plant or machinery, including the cost of any temporary new work, the construction of which was necessary for the construction of the work chargeable to the capital, all repairs and renewals being generally charged to the Revenue Account. The allocation in detail was carried on the following lines:—

The expense of an additional length of Railway, or the doubling of an existing line, the original construction of

any work, including that of those intended to be only temporary as well as of all additions to existing work was charged to capital account.

When new lines formed a junction with an old Railway, the expense of the junction and all its accompanying appliances of stations, sidings, signals, etc., was chargeable to capital account.

The cost of additional stations and of any important building not previously contemplated, which was added to an existing station was charged to capital account. The cost of maintaining in a proper condition the works, when completed, was charged to the revenue account ; but if any extraordinary casualty did occur, such as the destruction of a bridge by flood, the case was regarded as exceptional and the cost of construction or replacement was charged to capital or revenue, or divided between them as was deemed proper according to the circumstances of the case. In relaying rails, if the original rails proved too light, and additional strength in weight of rails was required the capital account had to bear the difference between the cost of the new and improved rails, and that of replacing the old rails by rails of singular character, revenue being chargeable for relaying and all other expenses. The same principle was applied to replacing by iron sleepers those of wood originally laid down. The proportionate increase on the weight basis or the difference in cost, whichever was less under existing rules, was charged to capital.

In the case of locomotives and rolling stock, capital bore the first expense of any addition which was made to the existing stock, and of any important improvement or alteration which may be made in the same, as well as of all machinery which is absolutely new, and not merely in re-placement of old ; but all repairs and less important alteration of the existing stock of engines, carriages, or

wagons already paid for and handed over for working purposes was charged to revenue. The rolling stock and plant, after being once paid for from capital, was kept up by revenue to its full compliment.

Of late, the Railway policy in India has passed through, and is yet passing through revolution, and drastic changes have taken and are taking place. With the taking over by the Government of the working of the East India and of the G. I. P. Railways, there now remain only 4 or 5 state-owned trunk lines (the B B. & C. I., the M. & S. M., the S. I. and the B. N. R., and the Assam Bengal Railway) which are yet worked by companies as lessees but the ownership and financial responsibility lie with the Government of India.

We will next deal with the recent financial policy of the Government of India in regard to state Railways. For years, the question of separation of the Railway Budget from the General Budget was before the Government, the Railways and the Public, but for various reasons this separation could not be effected. In the meanwhile the Railway expenditure, and consequently, Railway improvements, trade and industries suffered and even repairs to Railways were not carried out in time for want of funds and the property depreciated in many respects. Moreover owing to lapses of yearly grants sometimes works taken in hand were left unfinished or there were losses due to anxiety to spend money before the sanction lapsed. Finally, the question was taken up by the Acworth Railway Committee and the reasons advanced by the Committee for the separation of the Railway Budget were briefly as follows :—

(The following is a quotation from Appendix CC of Railway Board Administration Report for 1923-24.)

"(*i*) That it was impossible to provide for the proper development and efficient working of a continuous

commercial concern by means of an Annual Budget system which implied that the concern went out of business on the 31st March and started again on the 1st April; that, even allowing for exemption from the principle of lapses at the close of each year, Railway Budgets, if incorporated in the general revenues must in large measures assume the periodical rigidity of the Central Budget and share in the vicissitudes of General Revenues whereas in a commercial undertaking like Railways it is of the first importance that expansion and contraction of expenditure should follow on a more elastic basis—the policy and financial circumstances of the Railways themselves without undue limitations in regard to periods and dates.

(*ii*) That, so long as the two budgets were combined, there was always the risk that Railways should come to be subsidised out of general revenues.

(*iii*) That, conversely, since a considerable portion of Railway expenditure recurs in cycles, the whole of the excess of revenue expenditure in years in which expenditure is low is diverted to meeting the cost of other heads of expenditure and no reserve is kept to meet the heavy Railway expenditure in years when expenditure is high.

(*iv*) That the Railways can only be expected to work to a definite nett return over a period of years and that this involves the complete separation of their budget.

(*v*) That from the point of view of the central budget, the inevitable fluctuations of Railway revenue are a seriously disturbing factor and that separation is the only means of securing some measure of stability."

The Acworth Committee gave several instances of the way in which the profitable development of Indian Railways had been hampered, and in order to meet these difficulties so far as they relate to capital expenditure, the Railway Finance Committee, which was created after the

issue of the Acworth Committee's Report, recommended, and the Assembly after examining the local conditions and the recommendations of the Acworth Committee, agreed, that a definite amount of capital expenditure should be guaranteed to the Railways over a period of 5 years at a time.

Further, in order to eliminate the retarding effect of the old system under which there were lapses of sanctions and there were no depreciation funds on the proper rehabilitation of Railways, the position was recommended to be improved by having a depreciation fund. But it was admitted that the fund would not in itself provide a complete solution. It provided merely for the replacement of existing materials that were depreciating after they had attained their normal life, but there were other things to be considered, for example, it is known that economies could be effected by introducing heavier rails, engines, high capacity wagons, etc., and it often became consequently necessary to scrap the existing material before the end of its normal life. A part of this expenditure was properly debitable to " Revenue " and could not be met entirely either from capital or from a depreciation fund. In any case it was found not very practicable to start a depreciation fund to be of any good use unless provision was made for the arrear accumulation of such a fund which should have been built up from the revenue of previous years. To use the words of the Railway Board, " It would not however be convenient for the general revenue to provide the arrears at the present time or to forego all revenue from the Railways until these arrears have been paid up in full, while, on the other hand, the Railway Administration have little to gain from the immediate payment in one lump sum of the money which will only be required and can only be used over a period of years. The only method, under the

circumstances of providing for the institution of a depre ciation fund is to allow for the obligation to make good these depreciation reserves from the revenue of future years in determining the arrangement to be made with the Railway Administration."

Next to come to the revenue or operating expenses which is largely affected by conditions of traffic which cannot always be foreseen. As to receipts, that is, the income, the separation of budgets, *viz.*, of the Railway Budget from the General Budget of the Government of India, was necessary. The whole object of the Railway Budget was to make the Railways self-supporting and workable as proper commercial undertakings so that while they would be able to pay their own way as to expenses, interest on loans, to create depreciation, sinking and reserve funds, they should at the same time be able to so fix the rates and fares and to so improve and expand the Railway service in India as to meet all the increasing demands of the public, and this could only be done with complete freedom on the part of the Railways to regulate the rates, service and expenditure according to circumstances as they arose from year to year.

The only objection raised by the Acworth Committee to the separation of the Railway Budget was stated in Paragraph 80 of their Report. The Secretary of State in the year 1900 had said that so long as the Railway depended for money on the Government, they must necessarily share in the vicissitudes of the public finances. While it was admitted that money for Indian Railways, that are the property of the state, should continue to be raised by the Central Government, and not by the Railways individually or by a new machinery to be appointed by the Railway Board, this should not have affected any scheme for the separation of the Budget. But it was true, however, that with the separation, the Railways must find

from their own earnings the monies required for the fulfilment of their liabilities, including their liability in respect of loans, "no matter what agency was employed to raise the loan." Then as to the creation of state Railway reserve fund it was also to be agreed upon that at times of financial emergency the state must reserve for itself the right to use any part or whole of the Railway reserves, to restrict Railway borrowings or to curtail Railway expenditure. What the Railway Board pointed out was "the fact that the fate of the Railway is necessarily involved in the fate of the state does not seem to constitute an objection to the separation of the Budgets as a normal arrangement for ordinary times." They further observed, "A similar reserve power of raiding provincial finances in times of stress has been provided in Devolution Rule 19, but this has in no way affected the independence of the provinces in the framing of their budgets."

What was aimed at by the separation of the Railway Budget was "that the Railways should be as free as possible to manage their own affairs" and be responsible for their own finance.

But it was admitted that state ownership of Indian Railways involved the imposition of certain restraints because of the relation in which the Railways stood to the public finances, to the Legislature, to the other branches of the administration, and to the Secretary of State. For the above reasons and also in view of the fact that the Railways of India were for many years not a financial success and the state suffered losses, it was necessary that along with control on the part of the Assembly on Railway Finance (*i.e.*, such control as the Assembly in its present stage can exercise under its powers and functions) the Railways should contribute something to the General Exchequer.

The Acworth Committee recommended in paragraphs 74 and 75 of their Report that the Railways should pay to the exchequer not more than the annual interest on the debt incurred by the state for Railway purposes.

Finally, on 20th September, 1924, in order to relieve the general budget from the violent fluctuations caused by the incorporation therein of the Railway estimates and to enable Railway to carry out a continuous Railway policy based on the necessity of making a definite return to general revenues on the money expended by the state on Railway, the Legislative Assembly passed and adopted the following resolution, which is being acted upon :—

"(1) The Railway finances, shall be separated from the general finances, of the country and the general revenue shall receive a definite annual contribution from Railways which shall be the first charge on the net receipts of Railways.

(2) The contribution shall be based on the capital at charge and working results of commercial lines, and shall be a sum equal to one per cent. on the capital at charge of commercial lines (excluding capital contributed by companies and Indian States) at the end of the penultimate financial year plus one-fifth of any surplus profits remaining after payment of this fixed return, subject to the condition that, if in any year Railway revenues are insufficient to provide the percentage of one per cent. on the capital at charge surplus profits in the next or subsequent years will not be deemed to have accrued for purposes of division until such deficiency has been made good.

The interest on the capital at charge of, and the loss in working, strategic lines shall be borne by general revenues and shall consequently be deducted from the contribution so calculated in order to arrive at the net amount payable from Railway to general revenues each year.

(3) And surplus remaining after this payment to general revenues shall be transferred to a Railway reserve ;

provided that if the amount available for transfer to the Railway reserve exceeds in any year three crores of rupees only two-thirds of the excess over three crores shall be transferred to the Railway reserve and the remaining one-third shall accrue to general revenues.

(4) The Railway reserve shall be used to secure the payment of the annual contribution to general revenues ; to provide, if necessary, for arrears of depreciation and for writing down and writing off capital ; and to strengthen the financial position of Railways in order that the services rendered to the public may be improved and rates may be reduced.

(5) The Railway administration shall be entitled, subject to such conditions as may be prescribed by the Government of India, to borrow temporarily from the capital or from the reserves for the purpose of meeting expenditure for which there is no provision or insufficient provision in the revenue budget subject to the obligation to make repayment of such borrowings out of the revenue budgets of subsequent years.

(6) A Standing Finance Committee for Railways shall be constituted consisting of one nominated official member of the Legislative Assembly who should be chairman and eleven members elected by the Legislative Assembly from their body. The members of the Standing Finance Committee for Railways shall be *ex-officio* members of the Central Railways Advisory Council, which shall consist, in addition of not more than one further nominated official member, six non-official members selected from a panel of eight elected by the Council of State from their body and six non-official members selected from a panel of eight elected by the Legislative Assembly from their body.

The Railway Department shall place the estimate of Railway expenditure before the Standing Finance

Committee for Railways on some date prior to the date for the discussion of the demand for grants for Railways and shall, as far as possible instead of the expenditure programme revenue, show the expenditure under a depreciation fund created as per the new rules for charge to capital and revenue.

(7) The Railway budget shall be presented to the Legislative Assembly if possible in advance of the general budget and separate days shall be allotted for its discussion, and the Member in charge of Railways shall then make a general statement on Railway accounts and working. The expenditure proposed in the Railway budget, including expenditure from the depreciation fund and the Railway reserve, shall be placed before the Legislative Assembly in the form of demands for grants. The form budget shall take after separation, the detail it shall give and the number of demands for grants into which the total vote shall be divided shall be considered by the Railway Board in consultation with the proposed Standing Finance Committee for Railways with a view to the introduction of improvements in time for the next budget, if possible.

(8) These arrangements shall be subject to periodic revision but shall be provisionally tried for at least three years.

(9) In view of the fact that the Assembly adheres to the resolution passed in February 1923, in favour of State management of Indian Railways, these arrangements shall hold good only so long as the East Indian Railway and the Great Indian Peninsula Railway and existing State managed Railways, remain under State management. But if in spite of the Assembly's resolution above referred to Government should enter on any negotiations for the transfer of any of the above Railways to Company management such negotiations shall not be concluded until facilities have been given for a discussion of the

whole matter in the Assembly. If any contract for transfer of any of the above Railways to Company management is concluded against the advice of the Assembly, the Assembly will be at liberty to terminate the arrangements in this resolution."

Apart from the above convention this Assembly further recommends :—

"(1) That the Railway services should be rapidly Indianised, and further that Indians should be appointed as Members of the Railway Board as early as possible, and

(ii) That the purchases of stores for the State Railways should be undertaken through the organisation of the Stores Purchase Department of the Government of India."

The revised rules governing the allocation of expenditure to capital to the depreciation fund and to revenue account are as follows: (This is a quotation from Appendix D of Railway Board Administration Report for 1924-25.)

"1. Capital bears :—

(i) the first cost of construction and equipment of the line ;

(ii) the cost of maintaining a section of the line not opened for working ;

(iii) the cost of any addition to the line or the equipment of the line when estimated to cost more than Rs. 2,000, except of a temporary or experimental work ;

(iv) any excess in the cost of replacing a work or article of equipment (except a temporary or experimental work originally estimated to cost Rs. 2,000 or less) over the cost at debit to capital of the work or article replaced ;

Note 1.—If a temporary or experimental work is replaced by a permanent work, the whole cost

of the permanent is charged to capital, if estimated to cost more than Rs. 2,000.

Note 2.—The total cost of replacing a work originally estimated to cost Rs. 2,000 or less is charged to capital, if estimated to be over Rs. 2,000.

(v) the cost of any appointments specifically created for the supervision or construction of a work chargeable to capital, and a proportionate share of the cost of any such appointments, where the cost of work is chargeable partly to capital and partly to the depreciation fund or to revenue;

(vi) the cost of land.

2. Capital is credited with :—

(i) the difference between the cost at debit to capital of a replaced work or article and the cost of replacement, where the cost of replacement is less than the cost at debit to capital;

(ii) the cost at debit to capital of any work or article of equipment which is abandoned or disposed of without being replaced.

3. The depreciation fund bears :—

(*i*) the original cost of any of the units shown under the following classes of assets when a unit is replaced:

Class of asset.	Normal life.	Unit.
	Years.	
1. Bridge work—Steel work.	60	1. An entire span of girders. 2. Steel work on an individual bridge originally costing more than Rs. 10,000.

Class of asset.	Normal life.	Unit.
	Years.	
2. Bridge work—Masonry ..	125	An entire abutment pier, or arch.
3. Permanent-way—Rails and fastenings including points and crossings ...	60	Rails and fastenings, points and crossings.
4. Permanent-way—Sleepers —wood	15	Sleepers, wood.
5. Permanent-way—Sleepers—Cast Iron and ferro-concrete	40	Sleepers, cast irin and ferro-concrete.
6. Permanent-way—Sleepers—Steel trough ...	30	Sleepers, steel trough.
7. Buildings—Masonry ...	200	1. An entire building. 2. A part of a building when the part originally cost more than Rs. 25,000.
8. Buildings—All others ...	50	Do.
9. Station machinery ...	40	An entire unit of station machinery.
10. Plant	20	An entire unit of plant or an entire machine. *Note.*—Loose hand tools do not constitute a unit.
11. Ferries	40	An entire vessel, engine or boiler.
12. Rolling stock—Locomotive—Engines and tenders	35	1. An entire engine. *Note.*—The depreciation fund bears the cost of rebuilding an engine if the work is undertaken as one operation. 2. An entire tender.

Class of asset.	Normal life.	Unit.
	Years.	
13. Rolling stock—Locomotives Boilers ...	25	An entire boiler.
14. Rolling stock—Carriage and Wagon—Coaching vehicles	30	An entire vehicle.
15. Rolling Stock—Carriage and Wagon—Goods vehicles	40	Ditto
16. Motor vehicles—Rail ...	20	Ditto
17. Motor vehicles—Road ...	10	Ditto
18. Electric instruments and telephones	13	All articles.
19. Electric Power stations and Sub-stations—Buildings	30	1. An entire building.
		2. A part of a building when the part originally cost more than Rs. 25,000.
20. Electric Power station—Plant	20	An entire unit of plant or entire machine.
21. Electric Locomotives ...	35	An entire Locomotive.
22. Electric overhead equipment of track ...	50	All articles.

(*ii*) the credit to capital under rule 2 when a complete unit as described in clause (*i*) of this rule is replaced, abandoned, or disposed of.

Note.—The credit to capital is given when the unit is replaced, abandoned or disposed of.

4. The depreciation fund is credited annually with an amount equivalent to the total expenditure to the end of the previous financial year on all the units of each class

of asset as described above divided by the number of years assumed as the normal life of that class of asset provided that no credit shall be given on account of any unit after the period assumed for its normal life has expired. The effect of the rule prescribed in the paragraph is that when a unit is replaced or abandoned or disposed of before the expiry of its assumed normal life the credit on its account to the depreciation fund continues until the expiry of its assumed normal life.

5. Revenue bears all other charges including : —

(*i*) the cost of temporary and experimental works ;

(*ii*) the cost of any addition to the line or the equipment of the line, when estimated to cost not more than Rs. 2,000 ;

(*iii*) such portion of the cost of any appointments specifically created for the supervision or construction of a work chargeable partly to capital and partly to the depreciation fund or to revenue as is not borne by capital under rule 1 (*v*) ;

(*iv*) the credit to capital under rule 2 when it is not borne by the depreciation fund under rule 3 (*ii*) ;

(*v*) the original cost of any work or article of equipment replaced, when it is not borne by the depreciation fund under rule 3 (*i*) ;

(*vi*) the credit to the depreciation fund under rule 4.

6. Revenue is credited with any amount received from the disposal of a work or article of equipment.

" Revenue" also bears all working expenses, details of which are given below :—

On Indian Railways, the working expenses are divided under three main heads of expenditure, *viz.*, Ordinary Revenue, Programme Revenue and Fuel. Ordinary Revenue is debited with the whole of the expenditure (exclusive of cost of railway fuel but inclusive of its carriage on the

home railway) that is incurred in order, directly or indirectly, to maintain the railway, to operate the trains and to perform the other services that the railway undertakes to perform. Programme Revenue is debited with the revenue portion of the total annual expenditure (Capital and Revenue) incurred in order to improve the railway, either to make it more efficient or to make it capable of more extended service, and to pay for renewals and replacements. Fuel is debited with the expenditure incurred on the purchase of fuel intended for use on the railway and with the cost of carriage thereof over foreign railways.

The working expenses are divided into several Abstracts and these are further subdivided into main heads, sub-heads and items in detail. First there are main abstracts which contain details of expenses incurred by the Engineering, Locomotive, Carriage and Wagon, and Traffic Departments. The other abstract is debited with charges incurred by Board of Directors and the Railway Board, Agency, Audit, Stores, Medical, Police and Telegraph Departments.

And the last Abstract is debited with law charges, compensation, rates and taxes, payments to other railways, provident fund and gratuities.

The following are the different heads of expenditure :—

Abstract A.—Maintenance of structural works.

1. General administration.
2. Track (Running lines, sidings and yards).
3. Bridges and Tunnels.
4. Other structural works.
5. Equipment.
6. Conservancy of rivers.
7. New Minor works and other miscellaneous expenses.

8. Ordinary repair and maintenance.
9. Replacements and renewals.

Abstract B.—Maintenance and supply of locomotive power.

1. General administration.
2. Locomotives—(*a*) Running repairs, (*b*) Workshop repairs.
3. Equipment.
4. New minor works, etc.
5. Total ordinary repairs and maintenance.
6. Running staff.
7. Fuel.
8. Oil, tallow and other stores.
9. Water, wages and stores.
10. Payments to other lines and Miscellaneous expenses.
11. Replacement and renewals.

Abstract C.—Maintenance of carriage and wagon stock.

1. General administration.
2. Coaching vehicles, ordinary repairs to and maintenance of.
3. Goods vehicles, ordinary repairs to and maintenance of.
4. Equipment and new minor works, etc.
5. Replacements and renewals.

Abstract D.—Expenses of traffic department.

1. General administration.
2. Ordinary maintenance and repairs of traffic equipment.
3. Station staff.
4. Train staff including their wages and overtime.
5. Other staff.

6. Fires, lights, General stores, Water for stations, sheds and trains, and also water for transit.
7. Clothing for staff.
8. Stationery, forms and tickets.
9. Compensation for goods, etc., lost or damaged.
10. Other operating expenses.
11. Replacement and renewal of traffic equipment.

Abstract E.—Expenses of general department.

1. General administration, Home expenditure, Indian management and control.
2. Agent's office.
3. Accounts and audit department.
4. Stores department.
5. Cost and pay department.
6. Medical department.
7. Telegraph.
8. Police.
9. Miscellaneous expenses.
10. Ordinary repairs and maintenance.

Abstract F.—Miscellaneous expenses.

1. Law charges.
2. Compensation other than those included.
3. Rates and taxes.
4. Other expenses.
5. Miscellaneous expenses.

The business of a railway consists of two main branches, *viz.*, goods and coaching. The expenses of a railway to a large extent apply to both equally such as general supervision, general charges, maintenance and renewal of tracks and bridges, maintenance and renewal of machinery, maintenance of stations, but there are many items of expenditure where the costs are direct for either goods

or passenger service such as the cost of running goods trains, maintenance of goods rolling stock, cost of operating goods traffic in yards, goods sheds, etc., apply to goods service whereas the cost of printing tickets, maintenance of waiting halls, wages of booking and luggage clerks, cost of running passenger trains, maintenance of passenger rolling stock belong directly to coaching or passenger service. As far as possible, where a clear demarcation line can be drawn the expenses relating to each service may be separated, but as a very large amount of the total expenditure is common to both they are apportioned between goods and passenger service in ratio of gross ton mileage (the actual weight of the traffic plus the tare weight of the train behind the engine, multiplied by the actual distance run by trains, goods or passengers as the case may be) of each. For this purpose there are certain weights taken as equivalent to every passenger and every animal carried by passenger trains.

CHAPTER II.

New Railway Projects.

No Railways can be made in India without the sanction of the Government of India who have got to see that

(1) the Railway projects put forward would serve a useful purpose;

(2) the Railway would get sufficient traffic and would be a paying one and pay at least 5½ per cent. interest on the capital outlay in the near future;

(3) the Railway in question would not adversely and seriously affect the interests of the existing lines;

(4) the agency proposed to construct and to work the line is suitable;

(5) the Government or the promoters can supply the capital—required for the proposed railway, in due time.

The Railway Engineer would make a survey of the line and find out the proper alignment from an engineering point of view, but it is the business of traffic officers to see that the alignment is correct from traffic point of view as well; in fact, the proper procedure would be for the traffic officer to say where he wants the Railway and for the engineers to say whether there are any unsurpassable difficulties in making such a Railway, and what it would cost. In the case of any deviation of the alignment laid down the traffic officer should see whether such deviation would make any serious difference in the earnings or not.

Firstly, the traffic earnings have to be ascertained mainly by finding out (1) the population, (2) the area under cultivation of each crop, the production and the surplus available for export, (3) the existing traffic by roads, rivers, etc., and (4) the possibilities of future development in agriculture, trade and industries.

To be accurate it is essential to get out the latest figures of population per square mile in the respective "*thanas*" to be traversed by the Railway, by sending out reliable men to ascertain the population of the villages within a certain belt on both sides of the proposed Railway. The belt will vary according to circumstances in each case; if the tract is bounded by rivers or Railways which are competitors, the belt will be small but if the rural transit facilities to the proposed Railway are good the belt will be larger provided that there is no competitive Railway or river transit within easy reach.

Having ascertained the population, the next step is to find out what the Railway would get out of the population. Now it is certain that all the population are not going to travel, and it is also equally correct to say that many would travel several times in a year. The economic condition of the people, their habits in respect of migration, and the travelling power (*i.e.*, the power of purchasing transportation) should be carefully noted.

In the case of a short branch line of say 50 miles or 60 miles length, it would be unsafe to take more than 12 or 14 miles as the average distance to be travelled; in fact 10 miles would be more correct. On a reference to Railway Board's Administration Report for 1925-26 it will be seen that taking all the "Class I" Indian Railways together, which include the big Trunk lines of great lengths, the average distance travelled by third class passengers was less than 34 miles.

After fixing the average distance, and getting the figures of population, the next step is to fix the fare. An average fare of 1½ to 2½ pies per passenger per mile would be a fair average. To arrive at the passenger earnings, the following calculations may be made :

Population × average distance × fare per mile.

The goods earnings are estimated by taking the productions that are largely exportable, such as grains, oil seeds, cotton, jute ; and in the case of edibles an allowance of 1 lb. per population per day may be made for local consumption and the balance taken as available for export, and the Railway rate for edible grain and oil seeds ought to be taken at a lower figure per mile than for cotton and jute. Having found out the quantity available for export the next step is to see what are the present methods of conveyance and the cost of such conveyance, but if the Railway be a Railway of 40, 50, or 60 miles length, rest assured that if there are roads to the places, which the Railway would serve also, the Railway would not get the traffic for a distance up to 20 or even 30 miles, at least for some time to come, because carts will take traffic in grain, etc., from the villages to the shops of "Aratdars" in the marts and bring back return traffic in salt, oil, tobacco, goor, etc. But in due course of time as marts get established at the new stations, where new merchants come, the traffic is secured to the Railway. Therefore in the beginning low rates have got to be charged and the estimate of the earnings of the goods traffic should be made accordingly, *e.g.*,

(1) by estimating the surplus produce that would be exported, on the basis already given,

(2) by estimating probable traffic in inward goods such as, salt, tobacco, iron, goor, oil, etc., and also coal.

The Railway rates are taken for the purposes of estimate on the basis of rates charged in similar cases on the

neighbouring lines. Too high or too low a rate is rendered somewhat impossible by the Government fixing the maximum and minimum rates, although there is a wide margin between the two. An all-round rate of $\frac{1}{4}$th to $\frac{2}{3}$rd pie per maund per mile is a fair rate for purposes of estimate, the former for low priced commodities and the latter for higher priced goods.

The next step is to deduct the working expenses, which may be done by taking the percentage of working expenses to gross earnings, either of the neighbouring Railways of similar lengths or of Railways built and worked under similar conditions; this percentage taken off the gross receipts would give the net earnings. The figures of estimated cost of building and equipping the lines and of providing the rolling stock, workshops, etc., have to be given by the engineers, and on the total capital cost thus ascertained it is necessary to work out what would be the percentage of the net earnings, after allowing for depreciation fund, etc., on the capital outlay. If the net return is expected to be close on 5 or 6 per cent. per return annum, the Railway may be recommended to be made.

The narrative District Gazetteers, the reports of the land revenue settlement officers, the census reports and the Statistical District Gazetteers, the maps issued by the Surveyor General's Department (scale 1 inch to a mile), the various trade statistics published by the Government, and the local thana maps and the thana records of population will be found to be very useful in making enquiries of traffic prospects, and each thana officer besides being able to give the figures of population of the different villages under his jurisdiction will be able to give information regarding attendance at fairs, Melas, market places, etc.

CHAPTER III

Railway Goods Rates.

Railways are made for the purpose of carrying traffic, and the goods traffic consists of the requirements of the people, for whom the railways are made. It is the business of the railways to meet the wants of the people to their fullest extent as far as possible. Consistent with the idea of earning a reasonable dividend on the capital outlay the railways ought generally to so fix their charges as to reach the widest range of customers, *i.e.*, the mass, and it is in meeting the wants of the widest class that the railways make most of their profits, as the traffic is more in goods consumed by the mass than in those required by a few well-to-do people, or, in other words, the traffic is greater in articles comprising necessaries of life than those of luxuries. The everyday requirements of the population comprise the most important items of traffic. The volume of cheap goods requiring low rates is far greater than that of goods which fetch higher prices and thus can bear higher rates.

The freight traffic of Railways is classified for the purpose of charge. The number of articles which are classified is large. The railway goods classification consists of numerous items; more than two thousand entries appear in the goods classification. It has grown up gradually. There are entries of almost every description of traffic carried by the railways, from brooms to silk, and there occur many names which may appear queer at

first sight such as, Avloo or Cheera (beaten rice), Oodbatti (scented burning stick), Jow (barley), Kirby (stalks of maize, Jowar or Bajra plants, the grains of which are eaten by human beings and the stalks are given to cattle). The practice of classifying goods is very old. The idea was taken from English railways who again took it from the old canal companies of England. For many years there were seven classes on Indian Railways :—

Special Class	4th Class
1st Class	5th Class
2nd Class	X Class
3rd Class	X Class

But during recent years, after the War, the Indian Railway goods classification was revised and there are now 10 classes, into which goods are grouped. The number of articles to be carried by railways being over 2,000 and the classes 10, the grouping cannot possibly be either very logical or systematic.

In the case of a community or of a nation or the rate-payers of a town, the rich individually pay higher taxes in proportion to those paid by the poor, although both receive the same service from the State or from a corporation in the way of protection, sanitation, roads, light, water, etc. The rich pay to the State a higher rate of income tax, the municipal taxes on their dwelling houses are also more because of their being more commodious, comfortable and of better type; taxes are assessed by municipalities on basis of the rent-earning capacity of the houses, and the rich pay more per individual although, for instance, the consumption of, say water supplied by the municipality to an individual rich may be less than consumed in the house of a poorer man who has to do, for instance, all his washing at home. The community exists by mutual help.

It is true that the individual rich may pay more in proportion to the payment made by the average man, but collectively the mass or the poorer population pay more than all the rich put together. So that even in the matter of facilities, protection and service, both rich and poor contribute towards them, because if only the rich people wanted, say, electric lights, electric fans, filtered water, better drainage, better roads and had to provide all this out of payments by the rich alone the cost to them individually would have been much greater than when such things are provided by taxation of all. The rate of taxation differs according to income, lower rates being charged to the poor and higher to the rich. The same principle applies to the carriage of commodities by railway. The higher priced goods pay a higher rate than the lower priced stuff, but the latter contributes collectively more towards the railway income because of its greater volume.

Generally speaking, the fixing of classification is considered from the following standpoints :—

(*i*) Volume of business in a particular commodity.

(*ii*) Volume of traffic per consignment.

(*iii*) Load per wagon for a consignment.

(*iv*) The value of the article.

(*v*) Continuity and regularity or otherwise of despatches.

(*vi*) The bulk and the proportion of weight to bulk.

(*vii*) Degree of risk attending transportation.

(*viii*) Any special facilities required, such as quick despatch in case of fruits, vegetable, fish and other perishable articles.

The railway managers in fixing charges for carriage have also to take into account whether commodities are raw materials or in the first stage of manufacture, *e.g.*, wheat or flour and which of these require low rates. When

goods are sent loose or in bulk, such as stone, coal, sand, the railway invariably requires the merchants to do loading and unloading which is not included in the rates. As to bulky goods there are, for instance, heavy logs, which on account of their long length require double trucks, or boilers, which require special wagons built for their carriage; in such cases extra charges for lifting are made in addition to the rates.

Goods like Docra cotton (loose cotton), unpressed grass, loose jute, occupy much place in a wagon but give comparatively small weights; for this reason a minimum weight charge is made irrespective of load in the wagon, which may be less than the minimum. Molasses imported from Java packed in baskets, or earthen vessels containing raw sugar or Gur (sometimes in semi-liquid state) require special care in handling, although the railway saves the risk by accepting such goods at the risk of the owner, because of the fragile nature of the packing. Empty boxes, or tins or drums that are being returned, after making trips full of goods, are charged comparatively lower rates than such bulky goods pay ordinarily because the "returned empties" carried at cheap rates save to the trade the cost of providing new packing and help to bring more goods to the railway.

More or less, the earnings expected from the traffic, its volume, the value of the article, the weight secured per wagon, the regularity or otherwise of the despatches are the chief factors in connection with the fixing of rates for the main items of traffic such as coal, grain, timber, firewood, pulses, oilseeds, salt, sugar, wheat, flour, stone, lime, iron and steel goods, cotton, jute, cotton and woollen goods and all articles of everyday requirement.

Generally on the trunk Railways of India, the maximum

and the minimum rates for the ten classes into which the goods have been grouped are as follows :—

Class.		Maximum—Pies per maund per mile.	Minimum—Pie per maund per mile.
First	...	·38	·10
Second	...	·42	·10
Third	...	·58	·166
Fourth	...	·62	·166
Fifth	...	·77	·166
Sixth	...	·83	·166
Seventh	...	·96	·166
Eighth	...	1 04	·166
Ninth	...	1·25	·166
Tenth	...	1.87	·166

Within the maximum and the minimum rates there is a wide margin to enable each railway to regulate its charges according to the power of each railway, having regard to cost of working, to lower the rates and the power of the traffic to bear the charge, or, in other words, the maximum rates of a railway are governed by the power of the traffic to bear the rate (*i.e.*, the rate at which the traffic would move freely) and the minimum limit is the average charge, which would cover the expenses and leave a margin of profit at a reasonable figure, taking the business of the railway as a whole.

Now to proceed to describe the various descriptions of railway rates. There is, in the first instance, the ordinary class or mileage rate for each class, which is generally the maximum rate allowed by the Government. Next come the scale rates for the various articles in which there is a fairly regular traffic.

Scale Rates.

There are two kinds of scale rates in India, *viz.*,

telescopic and sliding. They are defined as under in one of my books—

"The difference between the sliding and cumulative (telescopic) scales is this. Under the former the lowest rate for the longer distance traffic applies on entire distance from start to finish. But under the latter or the cumulative basis the rate for the shorter distance is on a higher scale, and thus for the commencing distances the rates are the same for both long and short distance traffic, and it is only for distances in excess of certain distances that the charges are on a lower basis apply, and the higher and the lower rates are added together to form the total rate for the entire distance for long haul traffic under the cumulative basis"

Under the sliding basis at the scale of $\frac{1}{5}$ pie per maund per mile up to 100 miles; and $\frac{1}{6}$ pie per maund per mile for more than 100 miles, the charge for say 90 miles at $\frac{1}{5}$ pie per maund per mile would be 18 pies, whereas the rate for 103 miles at $\frac{1}{6}$ pie would be 17 pies or the charge for the greater distance would be lower than for the shorter distance. In such cases, under the application of differential rule (which requires that the charge for the lower distance should not be higher than for the greater distance, or the principle of this rule is that the charge for the part should not be greater than for the whole) the rate for all distances from 90 to 103 miles would be made 17 pies and not 18 pies.

But under the cumulative basis the rate for 90 miles would be 18 pies at $\frac{1}{5}$th pie per maund per mile; and the rate for 103 miles would be as follows:—

From 1 to 100 miles at $\frac{1}{5}$th	...	20 pies
For 3 additional miles at $\frac{1}{6}$th	...	1 pie (in a round figure.)
Thus for 103 miles the rate would be ...		21 pies.

Special Rates.

Next to come to exceptional rates, which are fixed having regard to special conditions, the main amongst them being competition with

(*a*) Rival railways.

(*b*) River and sea transport.

(*c*) Land transport other than railways.

Also in

(*d*) Competition between ports.

(*e*) Competition between places of supplies.

(*f*) Competition between two or more industrial centres.

(*g*) Competition between indigenous goods and imported articles.

Exceptional rates are also granted to foster and develop new industries, or to encourage agricultural or mining operations on a large scale.

It is generally believed that long distance traffic pays a railway better than short distance traffic, but in India where the leads are very long, it is not always the case that long distance traffic is better paying.

Taking the cost of maintaining the permanent-way, stations, yards, buildings, and the staff at stations, etc., at a fixed figure and the supervision and general charges constant, and repairs to rolling stock at so much per so many miles run and the running expenses per hour or per day, it is apparent that the more a wagon earns per day or per year the better it is able to add to the earnings and profits of a Railway. And this is attained by the railway getting more traffic, up to the extent of the carrying capacity of a railway, and by turning round wagons quickly.

When the traffic is constant and regular, *i.e.*, wagons can get traffic as soon as they are returned back to the

loading points; and the conditions are the same, *i.e.*, for instance there is empty running in one direction (both in the case of long and short hauls) it pays better to carry comparatively short distance traffic at a higher mileage rate than long distance traffic at low mileage rates. The following illustrations will prove this.

Long and Short Hand Traffic.

For 170 miles.

Rate $\frac{1}{8}$th pie per maund per mile × weight carried per wagon 500 mds. × length 170 miles = Rs. 56 (in round figures) 170 miles haulage of a wagon means 4 days in transit (2 days on the outward journey and 2 days on the return journey) at an average speed of 85 miles per day, plus 2 days (one day for loading and one day for unloading) or 6 days in all. Therefore, 365 days divided by 6 would give 61 trips in a year for a wagon.

And 61 trips × Rs. 56 per trip would enable each wagon to earn Rs. 3,416 in a year.

For 300 miles.

Now supposing the same kind of traffic was carried for 300 miles at $\frac{1}{10}$th pie per md. per mile, and the weight per wagon was 500 mds. the earnings would be thus:— 500 mds. × $\frac{1}{10}$ × 300 or Rs. 78. Taking 7 days for the loaded and return empty journeys and 2 more days (one for loading and one for unloading) it will be 9 days in all or there will be (365÷9) 41 trips in a year. And 41 trips × Rs. 78 would enable each wagon to earn Rs. 3,198 a year.

It is thus clear that in such cases the shorter distance traffic pays better, and this is so because of the comparatively higher mileage rate and because of wagons being turned round quicker and making more trips in a year.

For 700 miles.

Rate $\frac{1}{12}$th pie per maund per mile × weight carried per wagon 500 mds. × 700 miles or the length for which the traffic is carried = Rs. 151.

700 miles at 100 miles per day would mean 7 days on the outward, or loaded journey, and taking 5 days on the return journey, of the wagon or 12 days plus 2 days (one day for loading and one day for unloading) or 14 days. There will be 365 ÷ 14 = 26 trips. Now 26 trips × Rs. 151 per trip would give each wagon an earning of Rs. 3,926 a year.

The rate of $\frac{1}{12}$th pie has been taken for 700 miles as such a rate is permissible on traffic in coal and the last example is really intended for coal traffic. This shows that the long distance traffic is more paying in such a case.

Each case, therefore, has to be considered on its own merits, and a general principle cannot govern all cases; one cannot take it for granted that long distance traffic being a better paying traffic than short distance traffic, long distance traffic can always afford low rates. When, however, the length of a railway is long, or contiguous railways of long lengths belong to the same owner, such as the State, then long distance despatches are worth being encouraged, because such traffic keeps long lengths of railways well employed, and the cost of carriage is, therefore, well distributed; and agriculturists, merchants, traders, miners and factory owners are able to find markets for their productions even at great distances away from places where goods are produced. All these have the tendency to increase the business of a railway and the trade and industries of a country, and greater amount of traffic carried for long distances have the effect of reducing the cost, by wagons running on their wheels, with goods in them,

for longer periods in a year. And thus to secure these objects low rates for long distances, not only over one railway but over contiguous railways, are desirable, so long as such low rates leave a reasonable margin of profit, and the long distance traffic at less paying rates is not carried to the detriment of comparatively shorter distance traffic at better paying rates, *i.e.*, the railway should be able to carry both the traffic, and has not got to sacrifice the more paying business. And long distance traffic wagons, both on the loaded and empty trips, have got to be moved fast.

It is the business of a railway manager to see that the railway, to which he belongs, is fully occupied in carrying traffic at rates which have a reasonable margin of profit.

Main Principles and Factors that govern Railway Rates.

Although a small country has often a brisk trade, a large country like India has her own advantages. "A large area, with vast agricultural and mineral productions, give greater facilities for development of industries in which concentrated specialisation is a marked feature." In India, distances are great, and there are several ports mainly catering for foreign trade, but these ports are at the same time centres of great industrial and commercial activities. It is true that for a long coast line such as India has, the number of ports for internal traffic and for coasting trade vessels, is very limited and ought to be far greater in the interests of development of India's internal and interprovincial traffic at cheap rates, particularly because, for very long distance despatches part rail and part sea transit, provided that the port and transhipment facilities are adequate and convenient, help to reduce cost of transport and thus cheapen the price to the consumer. When two or more ports are competing for any one

territory, the port which has better facilities and lower cost of transport, will increase its trade. This remark applies equally to trade centres other than those at ports. Coal, iron or steel goods, in fact any industrial or agricultural product, from a great producing centre extends rapidly, under the influence of reduced railway rates, until the railway rates approach closely those of rival centres. One great factor to be taken into account, in connection with the expansion of trade through the help of the railways, is that if there be an increased supply, either due to the opening out of new coal-fields or of new industries or to new agricultural districts being tapped, the prices will go down both immediately and ultimately if the demand remains constant, but this is not likely to lead to expansion of traffic to any appreciable extent. Therefore, an increase in distances, for which goods can be carried, so as to place the goods within the reach of a wider range of customers, becomes essential, but an increase in distances can hardly take place unless the cost of transport is reasonably cheap. Thus the distance or mileage factor in connection with railway rates is important, but has to be looked at from two different aspects. One aspect is that an increase in the distance is necessary in order to reach a wider range of customers. The other aspect is that with the increase in distances the cost of transportation must not so go up as to increase the prices more than what the consumers, at long distances from places of supply, can pay or are paying for productions from old sources of supply. It is true that the cost of carriage of traffic has to go up little by little as the distance gradually increases; on the other hand, the railway rates per unit mile must go down with the increase in distances. In this connection, the old sliding scales of rates, which were at one time

extensively used on the Great Indian Peninsula Railway, were very useful in that the same lump sum low rate used, at times, to apply for a length of 100 miles or more after the traffic had been carried for distances of say more than 300 or 400 miles. It is held that after a traffic has already been carried 300 or 400 miles its carriage for extra 100 miles or so does not mean much more cost. And at the same time any extra traffic secured at rates, which though low have a margin of profit, means more net revenue to the railway.

Every railway in every country in the beginning tried uniform rates of charges based on so much per ton per mile or per maund per mile, but the varying traffic conditions in various parts broke up the simplicity of the original method, because allowances had to be made for water competition, for the needs of new industries, for competition with roads, or river transport or with the routes of other railways; and there was necessity for special rates in favour of export and import trade, mainly owing to competition between the various ports of the country and in competition with the productions of other countries in the same consuming market. In the early stage of railways in India, the traffic of each railway was free from competition from other railways, although each railway had to meet competition with other methods of transport, such as country boats, bullock carts, river transport, etc. In the next stage, the railways were connected with one another and offered alternative routes or served the same territories or rival ports; so eventually there was both direct and indirect competition. But the railways of India were not allowed to continue wasteful competition for any length of time; competition so long as it is healthy and not wasteful is good and is helpful both to railways and to the community, but in a country like India (which is not yet rich enough to bear

the cost of a net work of railways, and where the railways are built out of borrowings, and where the liability on account of Railway loans is yet large, the burden of which is on the shoulders of tax payers, who are the owners of Indian Railways) the building of parallel or competitive railways, simply, in order to serve the purpose of alternative or competitive routes or of cutting down railway rates and to divide the traffic, which is already being carried at reasonable rates and adequately by the existing railways, is not desirable; as in the long run such railways, if they do not tap new districts hitherto unprovided with modern means of transport and are not going to have a traffic of their own, can only have the effect of raising the working expenses of both the new and the old lines, and of thus reducing the net earnings—competitive railways, provided out of State funds or State borrowings (unless they bring in additional net receipts, enough to pay the interest on loans, after paying for all other obligations, and do not reduce the earnings of the older lines by taking away a good deal of the already existing traffic) are expensive and bring in no good results, which are calculated to bring permanent benefit to the community. In this respect, India has been very careful in avoiding the errors of American Railways. In India, the railways, whenever they started wasteful competition, were controlled by the Government, but Government never discouraged, but have always encouraged healthy competition, not involving non-paying rates. It is true that the railway rates, in the main, should be fixed on the principle of "what the traffic will bear," but with an increase in the cost of transportation, the factor as to what it will cost the railway to carry the traffic, cannot be altogether disregarded. It is, however, also true that the increased cost of transportation is due to the same causes, which raise the prices of commodities that form everyday

requirement of the people, *e.g.*, increased cost of labour, of foodstuffs and of raw materials for manufacture, due mainly to the increased cost of living. But the first and foremost point to be borne in mind in this connection is that the factor of high cost of living is world-wide, and this is to no small extent due to the fact that with the unification of the world by means of railways and steamships there has been equalization of prices, which means that nowhere the supply is now in abundance, as used to be the case when each locality was more or less dependent upon its local supply. At the Fifth International Congress of the Chambers of Commerce and Industrial Associations, held at Boston during September and October, 1912, Professor Irving Fisher of the Yale University said as follows :—

" Less than a generation ago the whole world was complaining of a prolonged fall in prices ; now it is complaining of a prolonged rise in prices Then the cry was depression of trade ; now the cry is high cost of living."

Some Features of India's Internal Traffic and Certain Comparisons with American Traffic Conditions.

India is, so far, principally an agricultural country, and its agriculture, except in certain parts of the Punjab and in Sindh, and in some other provinces where there are irrigation canals, is again almost entirely dependent on rains. With two or three good years of crops the prices remain at what must be called normal figures now-a-days, which, however, leave but a little profit to the ryots ; but even if there is no failure of crops in India and there is a shortage of supplies in Europe from other parts of the world, the prices go up and the railway traffic also increases in grains, oil seeds, cotton, jute or in any other commodity for which there may be a demand abroad.

The development of *internal traffic* in India has not been during recent years, rapid. Grain moves from North to South, cotton moves to the cotton-milling centres situated at long distances from places where cotton is grown; oilseeds move to oil mills far away from places where seeds are grown, and the richer districts (which were formerly growing cheap foodstuffs along with more paying crops, are now growing mostly the more paying crops) are importing foodstuffs. This creates a certain amount of internal traffic, even for long distances (which may be called inter-provincial traffic). Such traffic requires low railway rates and will have (in fact it has even now at certain places) to face steamer competition along the coast, but this is beneficial both to the railways and to the public. Combined rail and sea route is often the cause of reducing the cost of transport. Development of traffic requires special treatment and special rates, and cannot be brought under any hard and fast rule of rates-making. In some cases long distance traffic may be expensive to carry owing to the fact that the wagons carrying traffic in one direction might have to return empty on the other for long distances, and in such cases rail-*cum*-sea route is beneficial as the latter some times avoids much unnecessary haulage of of empty wagons for long lengths.

India will, for many years remain mainly agricultural, and so far as its railways are concerned cheap rates for cattle fodder (agricultural operations in India are carried on by plough bullocks and buffaloes), for agricultural implements, and for agricultural productions and dairy products will have to be sympathetically considered, which must in the long run benefit the railways also. Although, as already stated, a great deal of caution is necessary in the matter of building purely competitive trunk Railways,

expansions of Railways, to open out new tracts, or new mining districts or to provide communication, in order to increase agricultural areas or to tap fresh timber-producing tracts, are essential, provided that they would pay a net return of at least 5 per cent. per annum at not a distant date. At the same time, cheap Light Railways or tramways to bring produce from the producing areas to nearest centres or factories (such as sugarcanes from the field to the sugar mills or loose cotton to the ginning factories or garden products of vegetables and fruits in refrigerator vans to the stations of main lines) are great necessities. Garden products require cheap rates, safe carriage, refrigerator vans and careful handling. Any money judiciously spent in these directions is good both for the country and its Railways. In any other country, such as in Europe or U. S. A., such railways would come within the sphere of private enterprise, such as owners of large farms, ranches, mines and mills, but in India this is not yet practicable. Help from trunk railways, provincial Governments, Local Boards or Corporations in the matter of providing such Light Railways is yet almost imperative.

India, as has already been said, is a large country but it is not in the same position as regards its trade and industries as for instance the United States—another large country. The United States, though a new country, is leading in industrial development, whereas India, though one of the oldest countries, is yet young as regards industries on modern lines. It is said that in America, the growth of agriculture, of its industries, and of specialised industries in particular, has been rather rapid.

"It is claimed that the drift of America's industry towards massive multiform standardization is associated both as to its cause and its effect with their widespread geographical distribution and also with the special feature of her great railway service."

But the vast resourcefulness of U. S. A., both in minerals and in agriculture, its enterprising population, which was all immigrant in the beginning, and its present capacity to use most of the products locally were to no small extent responsible for its big industrial growth. First, America made its money by selling its agricultural productions in enormous quantities to Europe and then utilised the profits in building its industries, which were at once massive.

It is also remarked that the vast goods traffic of American Railways is in some measure the cause, and in some measure the result, of the line which has been taken by America's industrial leadership, because her railways are chiefly concerned with carrying large consignments for long distances and, that the Americans have developed that traffic with special energy. Because their charges for long distances and for large consignments were very low, the giant businesses, which send large consignments to distant places, obtained the full advantage of their special economies and thus have standardized productions in many varieties. This has led to economy of sending large trainloads to great centres like Chicago and many other places. And this has again resulted in rates being quoted to " basing points," which means that the charge for the basing point which is a big trade or industrial centre is low, and if the traffic is carried to any point in the neighbourhood of a base it is made up of the low rates to the basing point, plus the ordinary rate from the base to the station of delivery. In India, the rates have also been low, and combination of special rates with ordinary rates and application of low special rates, quoted for ports and for trade centres, to places short of such ports or trade centres have been in force at many places and low rates for wagon loads have been more or

less universal in India, but specially quoted low rates for trainloads have not yet come.

It is to be borne in mind that to-day in the United States by far the major portion of the large consignments that are carried for long distances consist of internal commerce, but, before this internal development, the transport of agricultural produce to the Atlantic and to Mexican Gulf on its way to Europe accounted for the great mass of the railway traffic in trainloads. In India, before the War, that is, during a period of nearly 15 years preceding the great War, during which period railways of India enjoyed prosperity, the greatest amount of traffic of Indian Railways was mainly in the export trade of produce to the ports (*viz.*, grain, oilseeds, pulses, cotton, tea, jute), and in coal carried mostly internally, and also in coal and manganese ore for export out of India, as well as in imports of kerosine oil, salt, sugar, iron goods, piece goods, machinery, etc. The internal trade was in the carriage of country sugar, grain or wheat and cotton for the mills, or oilseeds for local crushing in India and in flour, or in salt produced in India. And during the said period of 15 years, as the result of opening up of new railways, new trade and producing centres and more places of consumption, the railway rates were quoted on a low basis in order to attract traffic. But during the War, and after the War, the railway expenses went up (in fact, they were already showing tendencies of going up from some little time even before the War), and the general rise in prices resulted in workmen and employees demanding greater wages ; so these factors and the high cost of fuel and materials, particularly owing to the scarcity of materials during the War and for some time thereafter, raised the railway expenses. Further, owing to repairs being unavoidably neglected, during and

after the War, the cost of rehabilitation of Indian Railways has been somewhat great, and, therefore, compared with the expansion of traffic the increase in the capital expenditure may have been high. All these required that the railway rates should be commensurate with the rise in expenses. The rates and fares were increased, but they are coming down gradually, although the pre-war level has not been reached, and the rates are higher than the previous rates. It is, however, true that in the past two or three years the railway expenditure has again shown the tendency of going down, but very slowly yet. So long as trade depression lasts, and the traffic does not increase in huge proportions, there cannot be much drop in the cost of working, although economic methods of working such as bigger train and wagon loads, quicker transit, etc., reduce expenses. But for the prosperity of the country, larger production and more profits to the producers are wanted, and therefore, the people require, not unnaturally, cheap travelling and lower prices for their goods, and the merchants and traders want low rates for the commodities they trade in, because the profits in trade are said to be small and the trade is restricted. Further, the traders not only want to have a reasonable margin of profit, but are anxious to expand their business as well, and almost the same remarks apply to the business of railways. But the railways of India have a large debt account and they have, therefore, not only to provide for working expenses and the interest on borrowed capital, but have also to take into account the cost of depreciation, so as to avoid further large borrowings when time comes for renewals and heavy repairs, and are required to have depreciation funds. Moreover, the capital outlay of the old companies in respect of the railways purchased

by the State is being redeemed, and funds in the way of sinking funds have also to be created to repay the later debts. Then, again, the railways of India, besides being expected to be self-supporting, have to contribute to the General Finances of India and, therefore, they must be able to show good financial results. Under all these circumstances, the railway rates cannot always be based entirely and blindly on the principle of "what the traffic will bear" irrespective of whether such rates are remunerative or not. It is true that with the expansion of trade the cost of working will go down, if in carrying the traffic economic methods of working are applied. In introducing economic methods of working the chief factors are (*a*) to so load the wagons as to get as near as possible the fullest amount of traffic that they can carry, (*b*) to take advantage of full trainloads, and of through trains, and also, if possible, (*c*) to develop traffic in the direction and between points where empty wagons are moving and (*d*) to expedite the movement of wagons and trains. Thus cheaper railway rates for full wagonloads and large quantities are useful factors in attracting large lots per consignment, which help economic transportation of goods.

Examination of Figures of Traffic moving in Various Zones.

For any effective examination of railway rates, with a view to measures being taken to develop business, close cooperation between the commercial and transportation departments of a railway is essential. Whereas the commercial department should always be ready with recent (at least half-yearly) statistics of traffic movements in various important commodities between any two pairs of stations or any two groups of stations, and should also have available statistics of traffic in various commodities, moving in

different zones such as from 1 to 75 miles, 76 to 150 miles, 151 to 250 miles and so on, and the statistics of such traffic in each direction should be kept separately, the transportation department should maintain operative statistics showing the work done and the expenditure incurred per each unit of operation for each section of a railway; and the two departments of Commercial and Operation should freely exchange statistics and discuss details with a view to improve the railway business, particularly from and to the direction in which economic working can be attained. A railway Rates manager, in the absence of revenue statistics of a detailed nature as herein mentioned, is helpless in the matter of enquiring into and devising means for developing the business of his railway. Full details of traffic or revenue statistics that used to be kept by our railways will be found in the Chapter on "Railway statistics."

Certain further principles and factors that affect the making of Railway rates and the effect of growth of industries on Railways.

To return again to railway rates. After all, the consumer pays all the cost, which includes the price of transportation, and thus latter is a part of the total price of a commodity. The cost of transportation should not be such as to raise prices to high levels, but, at the same time, one has to consider whether the traffic in question can be carried with any margin of gain to the railway, though the gain may be a small one per unit. Any traffic giving regular and full trainloads, or traffic which fills up empty trains or wagons, is worth having, even at a small gain, because it is certain that a low net gain per unit, repeated several times, gives a fairly large aggregate net revenue in the long

run. It is, however, certainly not worthwhile for railways, if taken as business concerns, to have traffic at non-paying rates unless it is a case of a temporary fostering rate, to create new traffic or to assist a new industry. Indian railways cater largely for agricultural productions and coal, but her industries are growing up very slowly. Failures of many new industries, which were the outcome of the ventures after the War, have made people cautious in putting up money in any new industrial concerns. The growth of industries along a line of railway, though involving sometimes a certain amount of capital expenditure on account of sidings and other facilities required by such industries, has the tendency to increase the net earnings of a railway, because such industries not only help and increase the goods traffic but the passenger traffic as well. In the matter of goods traffic, raw materials, fuel, machinery, building materials have all to be carried to the mills, factories, and the finished products and bye-products are carried from the mills, works and factories. This gives wagonloads in both directions, thus minimising empty running. As regards passenger traffic developing through industries, it is either due to imported labour or to local labourers travelling to and from the industrial centres by suburban trains every day. In order to remove trade depression the producers to-day want cheap rates not only for the raw produce, but also for finished products and coal, and thus, for instance, flour mills may want cheap rates for wheat and low rates for flour, and a railway manager has to take all sides of a case and the various conflicting interests into consideration.

" It has been observed that it is obviously to the general interests that sources of supply should grow up as near as possible to centres of consumption."

If the above principle were blindly accepted, then, for instance, Bombay and Bengal should have their flour mills near to places of consumption, *i.e.*, the flour mills should be in Bengal and in Bombay. But on the other hand, it is held that the sources of supply of raw materials for the manufacture of flour and oil are to be near to places of manufacture; if so, then flour mills and oil mills should be in the Punjab, in the U. P. and in Behar ; and in the same way cotton mills had better be in the Berars and in the interiors of Guzerat rather than in Bombay, and far less in Calcutta. If this be so, then the railway will be concerned in carrying raw materials for short distances and finished products for long distances, but the true policy in general public interests would be to encourage manufacturing centres both near and far away from the raw material-producing centres, because then it would give all a chance and stimulate healthy competition. At some places, the nearness to the coal fields or to the important consuming centres or to the sea board might counteract the disadvantages of distances from raw material-producing centres. The Interstate Commerce Commission of the United States of America have maintained that "each locality is entitled to the benefit of all its natural advantage." For instance, the Interstate Commerce Commission do not want to allow such claims as that of say Boston for rates to and from the west approximately equal to those of other ports which have shorter connections with the West. The interests of a particular railway concerned to favour a certain locality can perhaps be ably advocated, as well as the interests of certain particular localities or particular groups of traders or producers, but if the general interests of several railways as a whole, or the general interests of the country on a

large scale, have to be taken into account then it will be difficult in many cases to establish the claims of particular interests. For instance, we have seen in India that the Government had to decline to entertain the claims of the Calcutta Railways for special reduced rates to the Calcutta Port for wheat and other grains and for oil seeds from the Punjab, the United Provinces and the Central Provinces for shipment to Europe. At the time this claim was advocated, the working expenses of the Railways, serving the Calcutta port, *i.e.*, of the E. I. Railway and the B. N. Railway, particularly of the former, were considerably less than those of other Indian Railways, and it was argued on the ground of low working expenses that the E. I. Railway should be allowed to formulate scales of rates at figures lower than the minima rates laid down by the Government for all Indian trunk railways for the carriage of grain and seeds. Or in other words, it was asked that an exception should be made in the case of the E. I. and the B. N. Railways. This would have meant sacrifice of the natural geographical advantages of the Western Ports of Bombay and Karachee. On the other hand, Calcutta Railways urged at the time that the cheaper cost of working of the E. I. Railway (due to flatness of the country traversed, rendering gradients easy, cheaper labour, cheap cost of fuel and the heavy density of traffic over which the cost was distributed), entitled the E. I. Ry. to charge lower rates; another reason put forward was that the low rates asked for the grain and seeds traffic would divert traffic from the Western Ports to Calcutta, which would mean loads for at least some of the empty wagons that came back to Bengal after discharging coal. The E. I. Ry. claim was not admitted, and it was not many years afterwards that the wisdom

of the decision of the Government of India in not allowing the claim of the E. I. Railway was realised because to-day there does not exist that very marked difference between the working expenses of the Calcutta and of the Western Lines which was so prominent before the war.[1] The rise in the working expenses has been heavy although the E. I. Ry. yet maintains about the cheapest cost of carriage. Although any wholesale change in the policy of general revision of the minimum rate limit for a particular railway, to enable it to draw traffic by a longer route, to ultimate destination from a shorter and quicker route of transport, and thus depriving the latter of its natural geographical position, may not be considered desirable, it has nevertheless to be recognised that only harm arises from any check to the stimulus, which a locality or localities or an industry or industries or a port may derive from healthy competition; but there is yet sufficient scope in India for healthy competition by the latitude given to railways between the maxima and minima rate limits prescribed by the Government. At one time, in U. S. A. "it was found that there was a desire on the part of railroad managers not to charge more than what a weak district would bear, while it was held that there was no harm in charging the stronger districts nearly all that the latter could bear;" it was, however, seen that such an arrangement, though bringing in high aggregate railway revenue, often resulted in several railways coming to an understanding between themselves, whereby they agreed to equalise the natural advantages of competing towns or centres by fixing rates in inverse ratio to the natural advantages. In India also, such a thing was in force some years ago, when under

[1] The percentage of working expenses to gross earnings are :— E. I. R. 60·51; B. N. R. 61·71; B. B. & C. I. 64·15; N. W. R. 62·90.

agreement between the E. I. Ry. and the B. B. and C. I. Ry. the grain and cotton rates from Delhi to Calcutta over a longer distance were allowed to be cheaper than the rates from Delhi to Bombay, a shorter distance, because Calcutta had the disadvantage of higher steamer freights to London as compared with cheaper freights from Bombay to Europe.

Combination and Agreements after Competition.

Alike Railway competition in every other country, Railway competition in India also ended in combination. Agreements and understandings were come to between the competing lines, under which the impossible routes retired from competition; and so far as reasonable routes were concerned sometimes rates were equalised; in other cases traffic was divided; while in some instances certain territories were allowed to certain routes.

More or less, the arrangement was that the route which had the power to hold the traffic, mainly because of cheap rates it could maintain, was given a larger share of the traffic, except that in the case of a route or railway, which involved break of gauge, even in spite of its power to quote the cheapest rates, it had to be satisfied with a little lesser share of the traffic than it would have got, had it been a railway or route of continuous gauge, along with its power to quote the cheapest rate.

In a few cases "pooling" arrangements were come to, under which the traffic receipts between the competing points of the various routes were put together, and each route got its allotted share; any route carrying in excess of its specified share had to refund to the other routes half of the excess, and in some instances 75 per cent. of the excess: *i.e.*, the carrying line was allowed to retain the working expenses, the net receipts on the excess traffic

went to such routes or railways which should have carried that traffic under the agreement.

Aims and Objects of Railways in getting Traffic and quoting Rates.

Not many years ago, it was the accepted principle that the first and foremost object of railways should be to get traffic, and some Economists said that while ordinarily the maximum limit of a rate was "what the traffic could bear" the minimum limit was the cost of transport, but that in the case of competition the latter or the minimum limit disappeared.

Development of Internal Traffic.

In India, however, the minimum limit was kept. In fixing or in revising the railway rates in India at the present moment, say for the development of internal commerce and trade for long distances, telescopic or sliding scales of rates applying on through distances over two or more railways seem somewhat essential, so long as this does not involve much empty running of wagons in the reverse direction and loss in railway revenue on the whole. If latter be the case, then some part of the cost of return journey of wagons has to a certain extent to be taken into account in fixing a rate. The development of internal traffic in India would come in the natural course of events, though slowly. One of the factors noticed during recent years has been that there has been more demand for wheat, grain and other commodities in the country itself, both provincially and inter-provincially, and for raw materials for local manufactures. As already remarked, in order to give stimulus to such traffic the present rates should be examined by review of traffic and their growth and movements, and the rates charged at present,

in various zones, with a view to ascertain in which zones the traffic is stagnant and whether beyond a certain limit the traffic commences to have a big drop, and then the results can form the basis for finding out what reductions are necessary, and how this could be effected in the required zones, without very much altering the rates in the zones where reductions are not needed. A combination of both telescopic and sliding rates in the same schedule, the former for the shorter and the latter for the longer leads, would appear to be useful.

Coal Traffic and the Special Maximum and Minimum Rates therefor.

Coal traffic is the only item of traffic on Indian Railways, which has the benefit of telescopic scales of rates applying on through distances over two or more railways. The maximum and minimum rates for coal are also low. They are as follows :—

Maximum Rates—

	Per md. per mile.
For all distances up to 400 miles inclusive	0·15 pie
For distances in excess of 400 miles ...	0·10 pie

Minimum Rates—

For distances up to 300 miles ...	0·10 pie
Plus for any distance in excess of 300 miles and up to 500 miles inclusive	0·066 pie
Plus for any distance in excess of 500 miles	0·05 pie

Within these maximum and minimum limits the following telescopic rates have been framed, which are at present in force and apply on through distances over two or more railways. (The Indian Public and Merchants have been for some time past urging that this system of applying

telescopic rates on through distances should be applied to all other traffic, in order that long distance internal traffic in India could be freely developed. Except in the case of coal the present system of applying telescopic scales of rates on local distances over each railway has the effect of limiting the growth of traffic for long distances.)

Coal Rates now charged.

Basis for Charge—

(1) For traffic carried for distances 400 miles and under :—

	Per md. per mile.
Mile 1 to 200 miles	0·165 pie
Plus for 201 to 400 „	0·13 pie

(2) For traffic carried for distances over 400 miles—

	Per md. per mile.
Mile 1 to 200 miles	0·15 pie
Plus for miles 201 to 500 miles ...	0·07 pie
Plus for 501 upwards „ ...	0·06 pie

In connection with coal traffic rates, another important feature to be noted is that the Railway or Railways forming alternative longer routes are allowed to equalise their rates with those obtainable by the cheaper routes. The utility of this arrangement is that advantage may be taken of the routes that may be short of traffic ; but it is to be recognised at the same time that the longer routes taking advantage of this concession do not quote rates in such a way as would involve the Railway into loss, particularly because the elasticity allowed in the matter of longer routes charging the same rates as the shorter routes might involve infringement of the minimum, and this is allowed.

For instance, if the distance by a shorter route be 150 miles, and the rate charged be $\frac{1}{10}$ pie per maund per mile by such route, when a longer distance of say 200 miles equalises with the rate of $\frac{1}{10}$ pie for 150 miles it practically charges 075 pie per maund per mile. It is, therefore, left to the discretion of the Railway or Railways forming the longer routes to equalise rates with those of the shorter routes only in such cases where it pays them to do so. Ordinarily, in the case of merchandise traffic rates, routes which are longer than the shortest distance by say 33 per cent., retire from competition, particularly if such competition involves heavy cutting down of rates, and more or less the same principle applies to coal traffic. Therefore, the Government of India have made it optional in the case of coal rates that the longer routes may equalise, and so far this permission has been judiciously taken advantage of. In the case of other traffic than coal the minimum rates apply on actual distance by each route and thus each route can only charge such low rates as are not below the minimum rate by that route.

Relation of operating Costs to Railway Rates.

Next to come to operative expenses and its relation to railway rates. Alfred Marshall in his book *Industry and Trade* (1923 edition), remarked as follows on the question of the cost of operating each traffic :—

"In particular, there is almost universal agreement that railway charges cannot be adjusted to particular costs; and that they should not be so adjusted, even if they could. But questions relating to absolute and relative costs continually arise very often on the initiative of the railways themselves and organised knowledge, based on systematic studies, is rendering it ever more possible to

make fairly confident, though carefully limited, statements in regard to them. The Interstate Commerce Commission often sets up independent investigations, when railway representatives defend rates, that have been impugned, by arguments based on cost of service. Such cases are apt to occur, (1) where any special service is performed and obligation incurred by a carrier; (2) where a rate complained of is judged as to its reasonableness by comparing the ascertainable costs of transportation of other commodities whose rates are believed to be reasonable; (3) where comparison is made with cost on other roads or on other parts of the system; and (4) where comparison is made between rates for carload lots and for smaller lots. In particular the Commission insists generally that in the fixing of relative rates on articles strictly competitive, such a relative rate should be fixed for each as corresponds to the difference in cost of service if that can be ascertained."

In considering the direct cost of goods traffic service it is remarked as follows in the same publication :—

"There is the consideration that goods traffic bears a closer resemblance to manufactures than passenger traffic does; because the carriage of goods, like the work of a factory, is only one link in a chain of production; whereas passenger journey is, as a rule complete in itself. Consequently, the immediate, though not the ultimate, interest in the freights charged for any kind of goods is generally concentrated in a relatively small number of people who trade in those goods as buyers and sellers. The producers and dealers who live in A are often deeply interested in the relation which the railway charges levied on the goods which they send to B bear to those levied on rival goods which come from C or D. In fact, there is much truth

in the saying of an experienced Railway Official, that when a trader of a locality complains that railway rates are too high, what is really meant, is that the rates charged to some competitive person or locality are too low. For, it has been already observed, neither producer nor trader is very much affected by a tax or any additional charge laid on him, provided that everybody else, who supplies the same market, is subject to the same burden : the main burden falls on the ultimate consumer, though the business of producer and trader may be a little curtailed."

" Accordingly railways in every country arrange that the charge for each consignment per ton per mile shall be greater for small consignments than for large and for small distances than for large : administrative economy requires the rates of charge to be grouped into several broad classes. The charges of each sort of goods are in some measure adjusted with general consent, to the average of the total consignments of them, which make same journey, and give scope for making up fairly full wagon loads if not train loads ; and again to the costliness of any special wagons, needed, and the ratio of their weight to their carrying power ; and again to the outlay and care needed for preventing depreciation of the goods and injury by the weather. Account may also be taken of the fact that wagons specialised for one sort of traffic are apt to be expensive to travel often empty one way and in some cases, to be idle during a great part of the year."

" To conclude :—A fairly old railway holding the greater part of the transport of a compact industrial district, is likely to have so completely adjusted its appliances to the traffic, that each of them is well occupied ; and does its work so economically, that any addition to that work would have to carry nearly full costs. In such a case cost of service could automatically become the

chief regulator of railway charges ; and some American writers are inclined to think that ere many generations are past, railways will in their own interest cease to concern themselves much about the various values of their services to particular classes of traffic but will levy nearly the same charge for all services that make equal demand on their plant at equally busy seasons, and require equal direct or ' particular ' costs."

From a theoretical point of view it may appear all right to charge to each service or to each consignment direct costs, together with a share, or rather a proportionate share, of the charges levied for similar service on the railway, and also with a share of the charges which are common to the whole railway. But this is not really practicable. Taking the question of rates quotations from a practical point of view the following observations may be worthwhile reading.

The practice of levying lower charges on goods that are carried in bulk and in large wagonloads and trainloads, for they assist economic working, is universal. But if, on the other hand, wheat and cotton were to be charged the same rates on a railway on the principle that the cost of transport was equally shared by both in proportion to ton mileage of each, and that this was fair owing to the fact that the cost of handling both kinds of traffic was the same, as both were carried in wagonloads, and sometimes in trainloads over railways like say the G. I. P. Railway, then it would mean that either wheat would have to be carried at very high rates or cotton would have to be carried at much lower rates. It would seem unnecessary to charge very low rates say, on cotton when the price of transport, even at fairly high rates, bears a small relation to the total price paid for cotton ; such a procedure would mean heavy and uncalled for loss of revenue to the State railways,

without benefiting the producers, or even the consumers, because the fluctuation in the price of cotton from week to week is sometimes greater than the total railway freight paid on it. On the other hand, to charge high rates on wheat would mean that such commodities would not be carried for any appreciable length of distance, and it would not be conducive to the public interests in general to raise the price of foodstuffs.

Terminal Charges.

In the matter of railway charges in relation to cost: First and foremost, come the Railway Terminal charges. They vary, or at least should vary, and they are required to be reasonable.[1] There are cases of small consignments which sometimes require double or triple handling at terminals as compared with say minerals, which are handled by the owners. Then certain traffic requires special care in the way of protection from weather or from fire. The terminal charges ought to be independent of the distances to be travelled; and there should be separate terminals for the forwarding and for receiving stations. Any compensation over and above the terminals, and the maximum rates, in the way of short distance charge is not a charge to be treated as a terminal and cannot be justified as such. Then there should be differentiation between charges for receiving and stacking goods in the railway godowns, prior to despatch, and the charges for loading and unloading of goods and for cranes and other appliances or for special shunting operations. It is true that terminals can be levied or waived at the option of a railway,

[1] Terminal charges are levied for services rendered at the forwarding or at the receiving station. When the expenditure incurred in providing terminal facilities is unavoidably large, or when the service rendered is expensive terminal charges have to be higher than at other stations, where conditions are ordinary.

and often when minimum rates were levied terminal charges were waived, but whether such an action constituted undue preference or not is a question of both facts and of law.

Wagonload and Small Lots Rates and Temporary Rates.

There should be different charges for small lots and for large lots because it is certain that full truckloads can be sent through quick to their destination whereas small consignments are often carried in partly empty wagons which go to increase dead weight of trains. Further, if large consignments of full truckloads can be had for long distances the charges beyond a certain distance ought to be lower per unit mile, not only to stimulate the traffic for long distances and to bring the same within the reach of a wider range of customers, but also in order to give such traffic some advantage of the quick turning round of wagons which they effect because they can get through much quicker. Any temporary fostering rates to develop a new industry, that is young, or in a locality where industrial development is needed, may be taken in the way of paternal sacrifice on the part of the railways, for the time being, in order to reap the benefit of the reduced rate in the future, but when the industry develops the special railway rates should go up ; at least, this might be the condition laid down when granting such a low rate. For instance, abnormally low rates were granted by the B. N. Ry., to the Tata Iron and Steel Works but the point is whether when this industry was flourishing a few years ago the reduced rate was at all needed.

Undue Preference.

The question whether a rate creates undue preference or not or whether it is unduly high is more a case of facts than of law. So long as it can be proved that the rates are

not in any way prejudicing the interests of any other concern, or are achieving a greater amount of general good, or if the special rates in question help to break the monopoly then it would be unwise to restrict free quotation of rates within maxima and minima limits, so long as the complainant cannot prove that the railways have unduly given preference to any particular locality or a concern. Mere comparisons of rates of one railway with those of another railway for the same commodity without taking into account the differing traffic, working and local conditions that prevail in different localities, could not be a reasonable ground to call a rate an unreasonable rate. Any law or regulation that would restrict the power of a railway to grant favourable rates where circumstances require them, such as fostering rates to a new industry or to an unfavourably situated locality or to centres with large business, engaged in mass production and thus giving railways traffic in full train and wagon loads, would be harmful. Or if favourable rates, that are quoted to meet water competition or to develop new industry in the hope of eventually increasing the business or to stimulate larger cultivation in a particular area, which is backward, are used as levers to reduce rates at places where similar conditions do not prevail or, in other words, if wholesale reduction is asked for on the example of certain special rates granted under certain particular conditions, then the railways will be reluctant to grant specially low rates when particular conditions make them essential. This will be opposed to the interests of public good. Therefore, any rigid law or regulation that distance for distance the charges should not be higher, *i.e.*, rates for long distances should not be lower than for shorter distances irrespective of differing conditions, cannot produce any real good result. Rates-making should be

left to experts. They should be able to justify the rates when called upon to do so, and when any particular industry or locality or concern is said to be unduly favoured by the railways, they should be able to show that this is not so and there should be evidence to prove this. And in every case when any particular interest is or interests are prejudiced by the action of railways, the railways should be able to show amongst other things that a greater public good was intended to be achieved in taking recourse to particular actions, and that every possible endeavour was made to avoid the discriminations complained of, but that this was not possible without loss of revenue which was not called for in public interests, or without causing further discriminations.

Rates-making Principle Summed up in a Few Words.

The long and short of the principle of railway rates-making, whether on company-owned railways or on State railways run on commercial lines (the lines on which Indian Government-owned railways are managed), is that "railways ought to treat the attainment of an adequate net revenue as of primary importance, while at the same time have regard to the progressive development of the economic life of the country, and be careful not to kill, and even impair the productive capacity of the goose that lays the golden eggs."

Factors to be taken into Account in Considering Applications for Reducing Railway Rates.

It would be interesting before concluding this Chapter to analyse some of the figures of rise in the railway rates and increase in cost of carriage taking the pre-war and the present figures. Two tables are appended below ; one shows the average cost of carrying

the traffic, and the other the average sum earned by carrying goods traffic.

TABLE I

Average Cost of carrying a goods unit one mile (Cost per ton mile). in pies.

1	2	3	4	5	6	7
	E.B.R.	*E.I.R.*	*B.N.R.*	*B.B. & C.I.*	*N.W.R.*	*G.I.P. R.*
(*a*) 1914-15. 1st half. ...	4·17	1·40	1·88	2·81	2·60	3·65
2nd half. ...	3·28	1·09	1·56	2·85	2·90	2·23
(*b*) 1925-26. ...	5·27	2·73	2·82	5·04	4·72	4·73
(*c*) 1925-26. Cost including interest at 5½ per cent. per annum on the Capital outlay.	8·17	4·52	4·72	8·97	7·05	7·49

TABLE II

1. 1914-15.	2	3		4	5 1925-26.
(Average earnings by carrying all goods taken together) Pies per ton mile.	*Name of Railway.*	*Coal Rates (average) Rate per ton per mile in pies.*		*Ordinary merchandise (other than Coal) Rate per ton per mile in pies.*	*Average sum received for carrying all goods taken together. Pies.*
2·85	E.I. Rly.	1922-23	2·90	6·98	4·06
		1925-26	2·90	7·30	
3·27	B.N. Rly.	1922-23	2·54	6·57	4·32
		1925-26	2·76	6·02	
4·20	N.W. Rly.	1922-23	2·48	8·12	6·90
		1925-26	2·56	8·98	
4·48	G.I.P. Rly	1922-23	2·62	9·04	6·60
		1925-26	2·56	8·68	
5·76	B.B. & C.I. Rly.	1922-23	2 05	10·89	8·93
		1925-26	2·58	11·0	

TABLE II—*contd.*

1 1914-15.	2	3		4	5 1925-26.
(Average earnings by carrying all goods taken together) Pies per ton mile.	*Name of Railway.*	*Coal Rates (average). Rate per ton per mile in pies.*		*Ordinary merchandise (other than Coal) Rate per ton per mile in pies.*	*Average sum received for goods taken together. Pies.*
6·59	E.B. Rly.	1922-23 1925-26	5·46. 4·37.	10·86 10·8	8·37

The rise in the working expenses has been rather high and this is reflected in the increased cost of carrying traffic, which will be apparent when the figures of item (*a*) in Table I are compared with those of item (*b*) in the same Table I. Apart from the actual cost of hauling the traffic in respect of commercially run State railways of India, where no small amount of the capital is borrowed money, which has to be redeemed, and taking also into account the interest which is being paid annually, and also bearing in mind that further borrowings, particularly on renewals and replacements are better avoided by creation of depreciation fund, a return of at least 5 or 5½ per cent. as interest on the capital outlay has got to be earned in addition to the actual working expenses to meet all the obligations, including Sinking and Reserve funds. On the railways of U. S. A., they take an interest of 5 per cent. into account and in Germany 3 or 3½ per cent.; and in Great Britain 3 per cent. interest is taken into consideration. Therefore, when heavy reductions in railway rates are asked for, the following points prominently come to the fore :—

(1) What is the existing traffic?

(2) What are the earnings from the existing traffic at the present rates?

(3) Why is a reduction in the rates asked for?

Note—Reductions in rates are only advisable when the reductions contemplated would attract more traffic to the railway or increase the lead of the existing traffic or develop a new industry or in other words create new traffic immediately, if possible, or at least eventually for certain.

(4) To what extent is the present traffic likely to increase in volume by the contemplated reduction?

(5) Will the reduction in the rate increase the lead of the traffic by reducing the price of the goods?

(6) In what way is the present rate limiting the growth of the traffic in volume and in expanding it over a longer length?

Note.—In all cases, it is to be seen that the reduction does decrease the cost of the goods to the consumer appreciably (or else there would be no gain) and that the bulk of the reduction does not go into the pockets of the middleman. It is also to be carefully investigated whether in the event of the contemplated reduction between certain points there would be other reductions in rates called for between other points, which might entail unnecessary loss of revenue, counterbalancing (or even overbalancing) the increased volume of business and increased earnings expected from the contemplated reduction.

(7) Whether the cost of operating the increased volume of traffic at reduced rates and the decreased revenue on the existing traffic, caused by reductions in rates

taken together would be more than counterbalanced by the increased net profit due to the increased business. If not, reduction in rates would mean loss to the railway.

In table II one notices the increased rates of 1925-26 (Col. 5). Rates are at a much higher figure than those of 1914 (Col. 1).

A reference to Table I, will, however, show that the increased rates have not been out of proportion to the increased cost of working, and may have, therefore, been justified, but if it is found that economic development of a country or the development of industries or of trade or of agriculture is impaired by enhancements in rates (even though such enhancements are called for by reason of heavy rise in working expenses) the matter requires serious consideration, for the retarding of economic development of a country or of important industries or of any important trade or of agriculture must do harm to the railway itself eventually, if not immediately. And in cases like these, the endeavour of the railway should be to keep the railway rates as low as they can afford to charge and to do utmost to economise in working expenses, so as to enable the railways to be financially able to give the rates, which the traffic can bear. Such a measure would appear to be imperative in the case of State-owned railways, even though they may be run on commercial lines, subject to the condition that no non-paying rates are quoted.

One interesting feature connected with Table II is the comparison between rates of railways of this country, with different traffic and working conditions. Any comparison between the average rates and fares of one country's railways with those of another country's railways does not throw much light. Even

between two railways of the same country the traffic conditions sometimes differ vary greatly and the average rate is more or less governed by the nature of the traffic carried. Let us for purposes of practical demonstration take the case of two Railways of India.

Reasons for varying Low or High Average Rates over Different Railways.

During 1925-26, the average rates for general merchandise, when taken separately from Coal, were 7·30 pies per ton per mile on the E. I. Railway and 11·0 pies per ton mile on the B. B. & C. I. Railway. This big difference against the B. B. & C. I. Railway was almost entirely accounted for by the fact that B. B. & C. I. Railway's earnings under the head "general merchandise" were to no small extent derived from its Cotton traffic, on which much higher rates are generally charged as compared with the rates for say, grain, pulses, oil-seeds or sugar, in which latter items the traffic of the E. I. Ry., was far greater than in cotton. Of the total earnings of the B. B. & C. I. Railway from general merchandise, other than Coal, amounting to about $6\frac{3}{5}$ crores of rupees the Cotton traffic (in raw and manufactured Cotton) accounted for no less than one crore and sixty lacs of rupees or about 25 per cent., whereas in the case of the E. I. Railway out of its earnings, from merchandise traffic other than Coal, of nearly $6\frac{2}{5}$ crores of rupees, its revenue from Cotton traffic during the same year, 1925-26, was but $7\frac{2}{5}$ lacs of rupees or slightly over 1 per cent. of the total earnings from general merchandise other than Coal. Naturally, therefore, the average rates of the B. B. & C. I. Ry. were higher.

Even taking the case of the railways which have their Head Quarters in Calcutta, and radiate from this port,

though in different directions, it is seen that while the average rate of the E. I. Ry. was 7.30 pies in 1925-26 those of the E.B. Ry. were 10·8 pies; this was entirely due to the fact that the E. B. Ry. carries a very heavy traffic in jute and also a fair amount of traffic in tea. Now both jute and tea, because of their higher prices, are able to bear a much higher rate than either grain, pulses, or oilseeds. The E. I. Railway carried a far heavier traffic in these latter commodities than in jute or tea and thus showed a low average rate than the E. B. Ry., the earnings of which were derived a good deal from jute and tea, mainly the former. But although the E. I. Ry. carried mostly low priced commodities (coal, grain, oilseeds and pulses) and earned low rates per unit mile, it had the advantage of getting heavy and concentrated loads for its wagons and trains as the following figures will show:—

TABLE III

		Average net freight load per train.
E. I. R.	...	416 tons.
E. B. R.	...	352 „

And factors like these helped towards reducing the cost of carrying the traffic on the E. I. Ry. as shown in Table I.

Low Rate per Ton Mile on a Large Volume of Traffic means Larger Net Profit.

It is generally held that low profit per unit, repeated several times, on a bigger volume of traffic, is more remunerative in the long run than large profit per unit on a smaller volume of business. This will be apparent from the figures that follow:—

TABLE IV

Public Merchandise, Goods and Coal.

	1925-26 freight (goods) ton miles (net).	Average profit for carrying (goods) one ton one mile, in pies.
	(*In Thousands*)	
E. I. R.	5,342,573	1·33
N. W. R.	1,906,880	2·21
B. B. & C. I.	1,541,125	3·35
E. B. R.	646,727	3·10

The goods earnings of and the working expenses of the following Rys. for carrying goods traffic were as under—

TABLE V

Results of carrying public merchandise.

	Goods earnings.	Cost of Working of goods traffic.	Net earnings from the goods traffic.
		(*In Rupees*)	
B. B. & C. I. Railway	7,36,94,000	4,46,13,179	2,90,80,812
E. I. Railway	12,52,61,000	8,43,14 735	4,09,56,265
E B. Railway	3,32,98,000	2,15,55,000	1,27,43,000
N. W. Railway	8,59,98,000	6,10,98,925	2,48,99,075

Table II shows that the average rates of the E. I. Ry. were much lower than those of the E. B. Railway or N. W. Ry. or the B. B. & C. I. Railway, and Table IV proves that the average net profit of the E. I. Ry. per unit was very small (half and less than half of any of the other three Rys.), but owing to the volume of traffic of the E. I. Ry. being much greater (although by far the largest proportion of their traffic was in coal, which was carried at exceptional rates which again were as low as the average cost of carrying traffic, *viz.*, 2·85 pies the average coal rate against 2·73 pies the average cost of carriage) the E. I. Ry. was able to show a total net

profit on the goods traffic at a much higher figure than any of the other 3 Rys. above mentioned. This completely proves the theory that a low profit per unit, repeated several times, brings in a larger aggregate profit in the long run than smaller volume of traffic with high rates generally does. But of course those railways which have mostly high priced goods to carry must charge relatively high rates compared to those charged on much lower priced goods, for low rates on high priced goods are not needed, as they would hardly affect prices paid by consumers but would affect the railways' net revenue, adversely, which will mean that the power of the railway to quote reasonably low rates for coal or grain or for third class passengers would be taken away. The E. I. Ry. capital expenditure is high, owing to its being most up to date of the Indian Railways and because of its giving extensive facilities to goods and passengers, and due to its having a large amount of rolling stock. In spite of this, and although the E. I. Ry. had very low average rates, owing to its carrying mostly low priced commodities, it was mainly because the E. I. Ry. traffic was carried in full wagonloads, and as the density of its traffic was very thick, and the traffic was constant and in regular trainloads, that the E. I. Ry. was able to make a larger aggregate profit on the whole, and was thus able to contribute the largest amount of money to the State Ry. funds and to the general finances of the Govt., and the net return on its heavy capital outlay was also good, nearly 7 per cent. which was also partly due to the E. I. Ry. having heavy traffic in passengers as well. The E. I. Ry. passenger fares are however not the lowest. The B. & N. W. and the R. & K. Rys. charge lower fares.

CHAPTER IV.

Railway Passenger Traffic and Fares.

The passenger traffic on Indian Railways consists of 4 classes, *viz.*, the first, second, Inter and the third. During the year ending 30th March, 1926 out of the total gross earnings of Indian (class I) Railways amounting to 1.09,68,35,000 rupees the earnings from the carriage of passengers amounted to Rs. 37,70,02,000 or the passenger earnings represented 34% of the total earnings. The total number of passengers carried over (class I) Railways amounted to 589,386,500 of which third class passengers were 564,418,600 or nearly 95% and the earnings derived from the third class passengers came to Rs 33,09,80,000 out of a total passenger earnings of Rs. 37,67,51,000 or the earnings from all classes of passengers. Thus, it is evident that third class passenger traffic plays an important part in the business of the Indian Railways and in the revenue earned by them.

India, it is true, is a vast country but not yet fully developed from an industrial and economic point of view ; its population is mostly agricultural and not rich. Indian Railways have, therefore, to cater principally for poor people, and it goes without question that if Indian railways want to carry traffic in passengers in increased numbers or even in their present numbers, they (the railways must continue to levy cheap fares and try to be able to afford still cheaper fares. While in the United States of America the increase in business is expected largely from improvements in comforts, luxury and speed of travel, rather than reduction in fares, in India the largest

increases hitherto have been from increases in number of trains and reduction in fares. It is, however, true that speed of travel, which was at one time thought of no importance to third class passengers in India, is very much appreciated and every fast train put on by the Railways has been at once popular.

Although it is openly said in America that the American Railways cater for a wealthy nation, it is believed, even in that country, by some students of Economics "that there should be a large demand for a cheaper service" in America because experience of continental Railways is that inferior but inexpensive travelling enables poorer people to travel extensively.

In India, besides the mass of population being agricultural and poor, the density of population is not thick everywhere, and the number of big towns is comparatively small, and the causes of travel are not the same as in European countries; only a limited number of people travel on pleasure trips or on excursions or travel for sight-seeing or to and from health resorts.

People in India travel either (1) on business, or (2) in search of employment, or (3) on pilgrimages, or (4) on marriage ceremonies, or (5) to attend courts.

The one feature to be noted is that in spite of it being possible to travel hundreds of miles continuously by rail in India, which is a country of long distances, the average distance travelled by third class passengers, taking all the (1st class) Railways together was not more than 33 miles per passenger. It is true, however, that if the statistical average distance had been taken out separately for through passengers (who travel over 2 or more Railways) the average number of miles in the case of such passengers would have been

somewhat greater, but, anyhow, the fact remains that taking the important Railways individually it was only in the case of the Bengal Nagpur and the East Indian Railways that the average distances travelled by a third class passenger were 49 and 45 miles respectively (in the case of the Jodhpur Railway the average distance was a little over 50 miles). In the case of all the other Railways in India, the average distance covered by a third class passenger was less than 40 miles. Excepting in the case of the Bengal and North-Western and the Rohilkhand and Kumaon Railways, which show an average fare of 2·49 pies and 2·74 pies respectively, the average third class fares of all the other important Railways were generally more than 3·30 pies per mile.

It is admitted that during recent years the important trunk railways particularly the E. I. R., have added substantially to the train service and to the travelling facilities of third class passengers (although it is claimed by the public that a great deal more remains to be done). Even at 3 pies per mile the cost of travelling 50 miles comes to 12 annas, which to a rural agricultural labourer means more than two days' wages. Even if the fare per mile for first 150 miles come to 2½ pies per mile the cost would be 32 annas, or Rs. 2, which means that an agricultural labourer must be able to spare 6 or 7 days' wages to be able to travel 150 miles. Although it is correct that distance for distance the lowest class fares on Indian Railways compare very favourably with the fares of Railways of England or of the United States of America there is hardly any comparison between the two kinds of accommodation, *viz.*, between the comforts provided for third class

passengers in those countries and in India. Moreover, having regard to the income of agricultural classes in rural areas in India it is hardly possible to expect long distance Railway travelling on a large scale unless either their income increases substantially or unless the fares go down. Of course during very important *melas* and fairs, some people exhaust all their funds to visit the religious shrines or to bathe in the holy waters of the Ganges on the occasion, but even to-day many travel on foot because of their inability to pay the fares. In any case, the figures of average distance per passenger is a proof that each individual Railway by coming down in its fares for distances in excess of 80 miles or so for third class passengers would assist to encourage long distance travelling without the chance of losing much revenue, because the present number travelling in excess of these distances cannot be very appreciable from Railway earning point of view if the Railway statistics are reliable. Reductions in fares for the long distances have to be substantial, to be really useful to the Railways and to the public.

People of India are generally not of migratory habits but still a number of people go for long distances away from their homes.

Passengers on business travel for both long and short distances, but generally for short distances except, for instance, Afghan traders, who come from the direction of Peshawar to trade in Bengal selling asafœtida, dried fruits, winter clothing and lending money. The Banias of Marwar in Rajputana, or Banias and Bohras of Gujrat, Kathiawar and Cutch also travel on business far and wide. The inhabitants of Behar and Orissa travel far in search of employment, and the mill hands of the jute mills in

Bengal consist mainly of imported labourers from Behar, the U. P. and the Madras Presidency. The Santhals and other aboriginal tribes from Chota-Nagpur and also from the Central Provinces go in large numbers to work in the tea gardens of Assam. The labourers employed in the Bombay Cotton Mills are generally Ghatis or Marhattas from Konkan. A number of domestic servants and agricultural labourers in Bengal are Beharis and Orias. The E. I. Railway, (including the O. & R. Railway) has direct access to a large number of big cities (*e.g.*, Delhi, Agra, Cawnpore, Allahabad, Benares, Lucknow) and the important places of pilgrimages such as Baidyanath, Gaya, Benares, Allahabad, Ajodhya, Hardwar, Naimisharan (Balamau) are also on the E. I. Railway, and a number of pilgrims visit these places. The B. B. & C. I. Railway has the largest daily suburban traffic in and out of Bombay. The country through which this railway passes has industrial and commercial centres, such as Ahmedabad, Bombay, Nadiad, Viramgam ; the industrial and commercial activities of Gujrat, Kathiwar, and of the Bombay Presidency in general, account for the large number of passengers on this railway.

Density of traffic round about big cities, especially if there are civil courts, mills and factories, is large, although such traffic is generally for short distances. It is said that "density of population shortens the average railway journey and raises the benefit which the public derive from choice of trains." These remarks may apply to passenger traffic and passenger trains for the B. B. & C. I. Railway broad gauge and on the E. B. Ry.

The South Indian Railway is entirely within the Madras Presidency, which has a population of 300 per sq. mile, but compared with the M. & S. M. Railway, which

also runs through the Madras Presidency and the Deccan, the passenger traffic of the S. I. Railway was large. The number of passengers per mile on the S. I. Railway was greater than even of the E. I. Railway and the G. I. P. Railway and were only next to those of the B. B. & C. I. Railway. Pilgrims go from all parts of India to Setu-Bandha Rameswaram, on the extreme south, the same as people from all provinces come to Muttra, Brindaban, Benares, Ajodhya, Hardwar, Allahabad, Dwarka and a shrine of very great importance is Puri (Jagannath) on the B. N. Railway.

No advertisement is needed in India to inform the people of places where there are religious shrines (such as Setu-Bandha Rames-waram in the extreme south of India and Badrinath on the top of the Himalayas on the extreme north at a very high elevation). Hindu pilgrims climb up to the Himalayas and then go to Setu-Bandha Rameswaram all the way on foot. The poor would sell everything or go as mendicants to undertake pilgrimages to religious shrines, and every Hindu villager, literate and illiterate, makes it a point to know the exact dates of the various important *melas* and fairs; no advertisement is needed to tell them of the dates of happenings of these *melas* and fairs, but what they really want is cheap fares and accommodation in trains so as to be able to reach the places of pilgrimage in time for bathing in holy waters or to visit temples and worship on the exact dates. If reduced fares are granted or extra trains are given it would certainly pay the railways to advertise the same in every village of importance. The notices should be printed in the vernacular of the district in which they are circulated, and should be distributed through the help of District Civil authorities, who would assist the railways in securing the assistance of

"Union Boards," Village *Panchayats* and of police *thanas*, and outposts in distributing the notices; the most effective way of advertising would be by beating of drums the drum beaters to be accompanied by criers, who would announce the reduced fares and extra trains and distribute the notices. *Pandas* or the priests of various shrines, who visit all parts of India to bring pilgrims, would also be useful canvassers and advertisers.

The passenger fares in India are said to be cheap. In the case of lowest (or the third) class passenger traffic the maximum and the minimum fares are :—

Maximum. Pies per mile.		Minimum. Pies per mile.	
By mail train.	By other trains.	By mail train.	By other trains.
5	4	...	1½

the present rates for charge, say on the East Indian Railway, on the basis of telescopic scale are :—

By mail.	Per mile.
1 to 50 miles	5 pies
plus	
51 to 300 miles	4 pies
plus	
301 and over	2½ pies

By trains Other than mail.	Per mile.
1 to 50 mile	3½ pies
plus	
51 to 300 miles	3 pies
plus	
301 and over	2 pies

Commencing from 1903 and for a long time afterwards

the third class passenger fares were as follows on the E. I. Railway—

For distance up to 100 miles	...	2½ pies per mile
101 to 300 miles	...	2 pies per mile
For distances beyond 300 miles	...	1½ pies per mile

The fares were enhanced during and after the War; but they have come down recently, though they are yet far above the old fares.

Copious supply of drinking water, ventilation, and sufficient sitting accommodation are great necessities in India during the hot months and some railways are working towards improvements in these respects.

In Alfred Marshall's "Industry and Trade" the following remarks occur:—

"It used to be held that a fast train costs more than one which made many stoppages on the same route. This was partly because an engine that could travel fast, was very expensive, but improved methods of exact mechanical engineering have reduced this difference; and it is now understood, that a train travelling forty or fifty miles an hour with but very few stoppages is less costly than that which makes frequent stoppages, and is yet required to attain a good pace between pairs. Therefore, the practice of charging additional fares for express trains has declined, especially in Britain."

It is seen, however, in India that there is a difference between the fares of ordinary and of express trains, but it is to be hoped that this difference will disappear in time as expenses decrease.

CHAPTER V.

Railway Statistics and Economic Working Methods.

The aim to be attained through railway statistics is to test the human agency to perform the work, next the mechanical agencies provided by the railways, then the conditions which affect the business of a railway, as well as those conditions that affect the performance of work and, lastly, whether a railway can, by betterment of conditions and through productive expenditure, effect economical management and increase its business and capacity to perform greater service and earn more net revenue.

In the early stages of railways, only the most ordinary statistics were kept showing the amount of goods and number of passengers carried, the money earned from them separately, the number of trains run and the working expenses under a few main heads—such figures admitted of comparison being made with similar figures for previous years; but this did not enable the railway authorities to ascertain what was the cost of each unit of work performed or whether any of the adverse results was due to avoidable or unavoidable causes. As the business and mileage grew and the expenses went up it became necessary to keep most elaborate statistics in order to effect economy and attain efficiency of service to carry more traffic at less cost.

It being recognised that a railway can only serve its own interests best by trying to serve the interests of its customers it should be the object of railways to attain both economy and efficiency, and in most cases

both go hand in hand, as for instance, the quicker the goods are carried the more will be the weight of traffic carried by a railway within a given time because of wagons being turned round quicker to loading points. This being so, the result will be more gross revenue to the railway along with efficient service to the public, but unless the service is performed economically there will not be much net gain to the railway, and, therefore, it will be to the interests of both the public and of the railways to avoid any loss to the railway, because if such loss continues the railway will not be able to render the service for any length of time.

It is economy to render increased service for the same amount of cost, but as service consists of certain work done it is essential to examine both the work and the cost or to measure the cost both in £ *s*. *d*. and in work done for each unit, and this cannot be done unless an account of each unit of work done, either by human agency or by machinery is kept, analysed and examined with a view to remedy defects and effect improvements.

Revenue or Traffic Statistics.

The first object of a railway being to get traffic it is necessary to ascertain what business a railway has at present and what money it is earning therefrom. Detailed account of traffic and earnings used to be kept by some of the railways of India on an elaborate basis and were published first every six months and subsequently annually. These statistics were called "Revenue Statistics" and contained the following particulars :—

(*a*) Traffic (both Passengers and Goods) between a pair of stations, *viz*., the total number and weight and the earnings.

(*b*) The weight and earnings of traffic at each station (*viz.*, total weight of goods received and despatched, and the money earned therefrom, and, similarly, the number of passengers booked from and to, and the revenue earned therefrom).

(*c*) Description and weight of traffic under various important commodities handled at each station and the railway earnings therefrom.

(*d*) Details of traffic in more important commodities (which contributed largely towards the earnings of a railway) between two points to and from which they moved and the earnings therefrom, such as weight of cotton carried on the G. I. P. Railway from each of its stations to Bombay, Cawnpore, etc., and the money earned in each case by the railway.

(*e*) The weight and the freight value of the traffic to and from the important and major ports from and to the interior, *viz.*, from and to every station on the railway concerned to and from the major ports.

The main object of these Revenue statistics is to make comparisons between the results of the present and the past years, in order to see if there is any drop or increase in the business of a railway in any particular class of traffic between any two specific points, with a view to steps being taken to increase the business, where there is a fall or stagnancy, by such means, within the power of a railway, as will attain this.

These statistics were immensely useful to the trade of India generally, in this sense that they were utilised by both the Imperial and Provincial Governments in the

compilation of statistics of movement of trade both in and out of India. The publication of these statistics has now been more or less abolished by Indian Railways and neither the Provincial Government nor the trade therefore get any benefit from such statistics now, although the Railway officials can, if they desire, get such information as they require from their own records but this is now more laborious and difficult work than it was when such statistics were maintained and published. In the absence of these statistics a Rates manager can hardly justify his existence.

Operative Statistics.

The operative statistics relate to service and cost of operating the traffic and should be prepared intelligently and in a useful form so that they may be used intelligently and usefully.

Next, they should be in the hands of the operating officials not six months after, but very soon after the expiry of the period to which the statistics relate. Therefore, in the case of operative statistics monthly returns are more useful than half-yearly or yearly statistics. Further, comparisons should be drawn with similar figures for the same month for two previous years at least.

The standard unit of statistics is "passenger per unit mile" and "goods per ton mile" and income and cost. The cost per ton of goods carried per mile is affected by the number of train miles and this is again affected by the weight of goods carried per train; the more weight a train carries the less is the cost per each ton carried by that train, because the cost of running the train is distributed between a larger number of units. Moreover, the weight carried by a train cannot be high unless the load in each wagon on the train is also high. Further, more miles a wagon runs per day

more will be the money earned and work turned out by the wagon, because it will be able to make a larger number of trips, and thus bring in more revenue to the railway, within a given period of time than the same wagon would earn if it made lesser number of trips within the same period and thus carried less weight of goods within that time. All operative statistics are more or less designed to bring about these results.

The following explanations will show how ton miles combined with other figures test the efficiency or otherwise of the results

Route miles = the actual mileage of the railway—excluding the double, triple or quadruple lines or the sidings.

Gross ton miles = weight of traffic plus tare weight of the wagon in which it is carried × distance carried.

Tons × no. of miles carried = Ton miles.

Ton miles ÷ Route miles = average density of traffic per mile of the railway.

Ton miles ÷ Tons carried = average distance, *i.e.*, the average distance for which traffic is carried.

Train miles = mileage run by trains (no. of trains × no. of miles run).

Ton miles ÷ Train miles = Train load, *i.e.*, the average load per each train per mile.

Engine miles = No. of Engines × no. of miles run.

Wagon miles = No of miles run by wagons (no. of wagons × the no. of miles run). Wagon miles per empty and per loaded runs are also shown separately.

Ton miles ÷ Wagon miles = avarage load per wagon per mile.

Train hours = indicate the time the engine is employed in carrying a train.

Ton miles ÷ Train hours = Ton miles carried per train hour.

Ton miles ÷ loaded wagon miles = average load per loaded vehicle per mile carried.

Shunting hours = time occupied by engines in attaching or detaching wagons *en route* or in station yards; apart from the work done by engines in hauling trains.

Ton miles ÷ shunting hours = Shows the amount of traffic hauled by shunting engines per hour, *i.e.*, the work turned out by shunting engines.

Ton miles ÷ Wagon stock in use of a Ry. = Wagon user and shows the extent the wagon stock was employed in carrying traffic.

Ton miles ÷ Engine stock in use of a Ry. = Engine user and shows the extent to which the engines were used in carrying traffic.

Weight of coal consumed ÷ Ton miles = shows the extent of coal used in carrying each ten mile.

The above results are but average results. Although, statistics are worked out by rules of mathematics they have not the exactness of the mathematical problems. The average results do not give the exact information about the cost of and the work done by any one particular unit, but, nevertheless, they show, if examined month by month with the results of the same period of previous years or of previous months, whether there is economy or wastage. So that average statistics, though not exactly accurate, help both the administrative and the executive to see whether there is wastage or economy, and after all this is the aim and object of statistics. When the average cost of any one of the various units jumps off or the average work done by any of the units drops down it then becomes a matter for enquiry with a view to find out, and remedy the defects, if any.

As previously stated, the main object of a Railway is to carry traffic and to carry it expeditiously and economically from the starting point to destination.

First and foremost, it is necessary to arrive at a certain basis which would form the criterion for test as to whether these objects are being attained or not from day to day, from week to week, from month to month and from year to year. Some consider that goods ton miles (tonnage carried × number of miles for which carried) are one of the chief essentials of Railway Goods statistics to gauge

all things in regard to Economic working or otherwise. Others, however, think that density of traffic is a better criterion than ton miles because, generally, increased density of traffic per mile of Railway means reduced cost of working per ton per mile as the cost is thereby distributed between a larger number of units. Cost of maintenance of the road, cost of station service, repairs to rolling stock, over-head expenses, supervision charges and many other classes of expenditure, excepting the actual expenses of running extra trains put on to carry the increased traffic, do not generally rise in proportion to the rise in traffic, because such expenses, except the actual running expenses, in most cases are constant for lesser or greater traffic. The constant expenses may be called independent costs as they have to be incurred in any case, whereas the expenses of hauling a train so far as they relate to cost of fuel, oil and wages of the train crew may be called dependent costs. And if a railway is earning from increased trains or increased traffic more than the dependent cost then it is worth while carrying that traffic or running extra trains for the same. The greater the density of traffic the better will be the net revenue.

It is admitted that by themselves ton miles statistics are of little use; they are, however, very useful when combined with other figures. The ton miles would first assist to show the density of Goods, *i.e.*, traffic per mile of a Railway, when divided by the route mileage of the Railway (the route mileage representing the actual length of the Railway but excluding the mileage involved in loop lines, double, triple and quadruple lines and sidings, whether commercial or transportation).

After Goods ton miles, we may take into account the train miles, the engine miles and the vehicle miles. The

train miles are arrived at by multiplying the number of trains by the number of miles run by the trains. The total number of miles run by all the engines, say during a month, divided by the number of days in a month give the total engine miles per day and the latter divided by the total number of engines utilised show the number of miles run per engine per day. The vehicle or wagon miles are arrived at by multiplying the total number of miles run by all the vehicles by the number of vehicles utilised in attaining this mileage. The train miles, the engine miles and the vehicle miles respectively indicate the work done by trains, engines and vehicles. The loaded and empty train miles, the loaded and empty wagon miles, and the light engine mileage should be ascertained for each section of a Railway, then these figures require to be worked out separately for the Up and the Down directions for each section or division of a railway, and on the railways where the coal traffic is heavy, Up and Down coal wagon mileage (loaded and empty) should be shown separately from similar figures for the general merchandise traffic, the object of this separation being to make a rough estimate of the cost of operating the coal traffic for which very low rates are charged. The average net load per each train (which is arrived at by dividing the ton miles by train miles) and the average load per wagon (ton miles divided by loaded wagon miles) show the actual traffic work done by trains and wagons.

Light engine mileage is involved when engines return without loads to work back trains, and this occurs when the traffic is heavy in one direction and light on the other. The weight of a train includes the actual weight of the traffic carried by it as well as the weight of the vehicles, the latter being known as the tare load and the former

as the net load of a train. The tare weight and the net weight added together make up gross load. The empty train mileage, the empty wagon mileage, the light engine mileage, and the tare weight of trains represent non-productive work that has to be performed as complementary to the productive work. Then there are the shunting miles which represent the attaching, detaching and moving about of vehicles in a yard as also the work involved in supplying empty wagons to coal mines, stone quarry sidings and also in delivering loaded and empty wagons to mills and factories and drawing them out, either loaded or empty.

The receipts are analysed by earnings per train mile, per vehicle mile and per ton mile and the working costs are also similarly analysed and the average gross trainload (which is arrived at by adding together the freight ton miles and the tare weight of the trains reckoned in ton miles, and by dividing the total of the two by the number of train miles) shows the average load hauled by train engines and enables one to see its effect on running expenses. From the point of view of a railway which sells transportation, or the space in a wagon, it is essential to see how much a wagon earns per day, per month and per year and what is the total expenditure on haulage per wagon. For this purpose the number of miles run per wagon per month, per engine per month, and the ton miles carried by each engine per month, freight loads per train and per wagon are important items for examination along with the analysis of running expenses for each unit of 1,000 gross ton miles and 1,000 net ton miles carried.

The more a vehicle earns per day the better it is for a railway and each additional loaded vehicle mile means more money earned. Thus it is clear that the time

required at the forwarding stations for loading, at the receiving stations for unloading, at transhipment points, where there are breaks of gauge, and the time taken in the transit of wagons, both loaded and empty, should be shortened and the load of freight per wagon and per train increased as far as possible. The first and foremost is to see that engines, wagons and trains get through quick, but merely getting trains through quick is not sufficient because most detentions to wagons *en route* occur at roadside stations for want of clearance, and particularly in large train forming yards. Detentions to trains at stations mean wastage in coal and oil and wages of train crew, and detentions in big yards and at stations amount to reducing the earning capacity of the wagons.

With more engine miles per day and bigger train-loads, lesser consumption of coal per ton mile should be the general result. A larger train load means less number of trains for a given amount of traffic and more miles run per engine per day mean quicker movement of wagons, thus increasing the carrying capacity of wagons within a given time by turning them round quicker.

Train loads are made up of wagon loads. The larger the number of freight wagons per train and the bigger the load per each wagon, the greater will be the freight train loads. High capacity wagons help better loads per each wagon and for each train, provided the capacity is very largely utilised, but if high capacity wagons are not given good loads they only go to add to the dead weight of trains, which is a greater waste. Therefore best endeavours should be made to give as big loads per wagon as can be obtained. Not only this—the Railway Administration should see that they do not provide either too high or too low capacity wagons. In India, even with big grain

traffic on the whole the load from individual stations is not big, and if a wagon has to be kept waiting for a load of 300 maunds, to be made up of odd consignments, it delays traffic, affects the profits of traders by blocking up their capital and thus restricts business. It is doubtful therefore, whether under these circumstances it pays in all cases to detain wagons for full loads, particularly if the load is to be made up of odd packages. 81 maunds or 100 maunds loads might be more easily obtainable than 300 maunds ; and especially when at the present moment, in India, a large number of wagons are standing empty and idle it would be best to utilise the wagons. It is correct that detaining of wagons for full loads is true economy, but it is also to be seen that the business is not eventually retarded by detention of goods.

When the balance of traffic in two directions is not even there must be empty running of wagons in one direction. Also when there is shortage of wagons, the empty percentage will probably rise as wagons cannot wait for a load, and must be sent on empty to another station for immediate use. This, again, means more train miles, because for loads that could have been cleared by detaining wagons, instead of returning them empty, empties have to be worked in again to clear the loads.

The main units of work done in connection with freight traffic are ton miles and wagon miles and the main units of costs are the train engine hours and the shunting engine hours. Therefore, if the number of ton miles per day per engine or per engine hour is shown they should serve as a basis for ascertaining whether the traffic is being expeditiously and economically worked or not.

Each Railway in India is required to publish statistics of both passenger and goods traffic operation and they

are shown under the following heads; and the Railways get out for their own use similar statistics for each section and division of a Railway, and it is essential that these statistics should be carefully studied by all concerned in traffic operation. The statistics are published every month.

Average speed of trains.

Average wagon load.

Coaching stock.

Average authorised stock.
Number on the line.
Number under or awaiting repair.
Number overdue repair.

Coaching vehicle miles.

Coal consumption.

Train engines.
Shunting engines including those employed on sidings.
lbs. of coal consumed per engine mile.
lbs. of coal consumed per 1,000 gross ton miles—
For passenger and proportion of mixed.
For goods and proportion of mixed.

Commodity statistics.

Traffic carried under 30 heads.
Earnings under 30 heads.

Density.

Passenger miles per running track mile per day.
Net ton miles per running track miles per day.

Earnings.

Passenger.
Goods.
Gross.
Net.

Engines.

Average authorised stock.
Number available for use.
Number in use daily, by classes.
Number under or awaiting repair.
Engine failures.

Engine hours of.

Train engines.
Shunting engines.
Other engines (including assisting engines required to push trains over heavy grades or trains with very heavy loads; assisting engines kept in steam but not required and light engines).
Siding engines.

Engine miles of.

Train engines.
Shunting engines.
Assisting engines required.
Assisting engines not required.
Light engines.
Siding engines.
Engine miles per day per engine in use.
„ „ per day per engine on the line.
„ „ per passenger engine per day.
„ „ per goods engine per day.
„ „ per mixed engine per day.
„ „ per engine failure.

Expenditure.

Working expenses by departments.
Replacements and renewals.

Goods stock.

Average authorised number.
„ number on the line daily.
„ number of unserviceable wagons on the line daily.
Number overdue repair.

Light engine miles per 100 train miles.

Passenger.
Goods.

Loads of Goods trains.

In wagons.
In net or freight tons.
In gross tons.

Oil Consumption.

For Train engines.
For Passenger and Goods vehicles.
Pints of oil consumed per 100 engine miles.
Pints of oil consumed per 1,000 vehicle miles.

Passengers.

Number originating on a railway by classes.
Number carried by classes.
Passenger miles by classes.
Earnings by classes.

Shunting miles.

Of Passenger engines.
Of Goods engines.
Per 100 train miles.
Passenger.
Goods.

Ton miles.

Net ton miles.

„ „ „ per wagon day.

„ „ „ per locomotive day.

„ „ „ per shunting engine hour.

„ „ „ per train engine hour.

Gross ton miles.

Gross ton miles per total engine hour.

„ „ „ per train engine hour.

Train miles.

Train miles per train engine hour—

Passenger, mixed and goods trains separately.

Train miles per total engine hour—

Passenger, mixed and goods.

Wagon miles.

Wagon miles per engine hour.

„ „ per shunting hour.

„ „ per wagon day.

A great deal has been done on Indian Railways, during recent years, in the matter of obtaining, compiling and utilising operative statistics, but, it is to be regretted, that the same cannot be said of "Revenue Statistics." Both in the chapter on "Railway Rates" and in the present chapter the necessity for compiling and utilising "Revenue or Traffic Statistics" has been pointed out, and it is to be hoped that steps will be taken in this connection. A Rates manager can hardly justify his existence unless he has full information as regards traffic movements in various important commodities between any two points. Moreover, ton mileage statistics of all the important commodities should also be available in addition to the statistics that used to be kept at one time and have been abolished (but should be reintroduced).

CHAPTER VI.

Government Control.

When the Railways were first made in India they were owned by guaranteed Railway Companies incorporated in England. Government of India exercised control over these companies in respect of their operation, through Consulting Engineers who were appointed by and responsible to the Government of India. In the first place, a railway can on no account be opened for public traffic until a Government Inspector certifies that the railway has been constructed to meet all the requirements laid down by the Government. Safety of passengers, standard of construction of the railway line, of bridges and of rolling stock are the things that these Inspectors are required to thoroughly look into. Further, periodical inspections of railways, after they have been opened for traffic, are also made by these Inspectors. The rates and fares are controlled by the Government who fixes the maximum and minimum rates and the classification of goods. The original companies were given gifts of free land and a guaranteed interest on the capital, at 5%, 4½% and 4% according to the market rates prevailing when the various contracts were made and, therefore, in practically all matters of importance, excepting in the case of the choice of staff, the companies were under supervision and control of the Government of India, which had the power to decide the standard and details of constructions, the type and the number of rolling stock, the number and timings and speed of trains, expenditure to be incurred, standard of maintenance and the form of accounts. Subsequently, as the Government took over the railways,

and the property became that of the State, the administrative control exercised by the Government over the companies to whom the railways were leased for working, became more extensive, and the aforesaid control still prevails more or less, although in certain respects extended powers have been given of late to the companies, but in the main they are under control and supervision of the Government. In the matter of rates and fares, the railway companies were no doubt given sufficient latitude between the maximum and minimum limits, but the Government could at any time appoint a railway commission to investigate complaints on matters relating to reasonable facilities, reasonable rates and undue preference. In the matter of accounts and expenditure, the Government Auditors, first in the beginning for many years, made extensive checks on companies' accounts, and in later years restricted themselves to test audits. More or less, the same order of things remains even to-day, but as the railways have been acquired by the State and a large mileage of State railways is now operated by direct State agencies of the Government of India, the latter have absolute powers over State railways, and in respect of company lines, in which the Government has a preponderating financial interest, there is always a Government director on the Board of Directorate, who has the absolute power of *veto* in all matters, except in connection with the choice of staff. There is now a Railway Rates Advisory Committee, which has been empowered to hear complaints, to investigate and take evidence in respect of unreasonable rates, undue preference and withholding of traffic facilities and to make recommendations in this respect to the Government of India. It is surmised that after some time, this Rates Advisory Committee will be turned into Rates Tribunal. It is, however,

to be borne in mind that the position of a Rates Tribunal in India would be more difficult than of the Rates Tribunal in Great Britain or of the Interstate Commerce Commission in U.S.A., because whereas in the two latter countries the Tribunal and the Commission have to adjudicate between interests of private companies on one side and of public on the other, in India, a tribunal or a rates advisory committee will have to or have to take into account also the factor that if, as the result of their decision or recommendation, any heavy loss is inflicted on railways by a drastic reduction in railway rates it would mean that this loss would eventually fall on the tax-payers who are the owners of most of the trunk railways of India. Nevertheless, a Tribunal or rates advisory committee is very useful in determining whether or not the railways are doing their best to act impartially and do not take such measures and quote such rates as would impede the development of India's economic condition. Administrative control of the Government of India over Railways is now exercised by the Railway Board, which consists of a Chief Commissioner, a Financial Commissioner and two members, besides a staff of Directors, Dy. Directors and Assistant Directors, Secretary and Assistant Secretary. The Chief Commissioner is the head of the Railway Department of the Government of India and is responsible to and under the Member for Commerce in the Executive Council of the Viceroy. The Financial Commissioner, though ordinarily a member of the Railway Board for purposes of all administrative work, is also responsible to the Finance Member of the Executive Council of the Viceroy and is his representative in the Railway Department. The following extract from Railway Board's Administration Report for 1924-25 will show the relations between the Government and the

guaranteed companies now working certain State railways as lessees. "The lines that they work are the property of the State.

The greater part of the capital is the property of the Government, either through having been originally supplied by it or through the acquisition by the Government of the greater part of the companies' interests on the termination of old contracts.

When funds are required for further capital expenditure, the Government has the option either of providing them or of calling on the company to provide them. The company receives guaranteed interest at a fixed rate on its capital; and similar payments out of the earnings are made to the Government. If, after these have been made, surplus profits remain, they are divided between the Government and the company in the various proportions provided for by the contracts. The company's share is in all cases only a small fraction of the Government's share.

All the contracts, except one, which is for a fixed term of 25 years, are terminable at the option of the Secretary of State, at specified dates; and on termination the company's capital is repayable at par."

The administrative control exercised by the Government over the companies is as follows:—

"The company is bound to keep the line in good repair, in good working condition, and fully supplied with rolling-stock, plant, and machinery; to keep the rolling-stock in

good repair and in good working condition; and to maintain a sufficient staff for the purposes of the line;—all to the satisfaction of the Secretary of State.

The Secretary of State may require the company to carry out any alteration or improvement in the line, or in the working that he may think necessary for the safety of the public or for the effectual working of the line.

The Secretary of State may require the company to enter into agreements, on reasonable terms and conditions, with the administrations of adjoining railways for the exercise of running powers, for the supply to one another of surplus rolling-stock, for the interchange of traffic and rolling-stock and the settlement of through rates, and for additions and alterations to, or the redistribution of existing accommodation in junctions or other stations in view to their convenient mutual use.

The train service is to be such as the Secretary of State may require. In order to secure a general control over the rates quoted by companies, the Secretary of State has retained power to settle the classification of goods and to authorise maximum and minimum rates within which the companies shall be entitled to charge the public for the conveyance of passengers and goods of each class.

The company has to keep such accounts as the Secretary of State may require, and these are subject to audit by the Secretary of State.

In all other matters relating to the line the company is made subject to the supervision and control of the Secretary of State, who may appoint such persons as he may think proper for the purpose of inspecting the line, auditing the accounts, or otherwise exercising the power of supervision and control reserved to him. In particular, the Secretary of State has the right to appoint a Government Director to the Board of the company, with a power

of veto on all proceedings of the Board. All the moneys received by the company in respect of the undertaking, whether on capital or revenue account, have to be paid over to the Secretary of State.

All expenditure by the company has to be stated and submitted for the sanction of the Secretary of State.

Thus, the Government has the preponderating financial interest in the lines worked by the two classes of guaranteed companies, those formed before 1869 and retained as working agencies with reduced capital after purchase, and those formed on terms more favourable to the State after 1880; it has exceedingly wide control over the methods of working; and it has the right of taking possession of the lines at specified times on repayment at par of the capital of the companies.

In addition to the lines referred to above, and apart from lines constructed by Branch line companies, District Boards and Indian States, two lines of some importance have been constructed by companies which receive no direct assistance by the Government, namely, the Bengal and North-Western Railway and the Rohilkund and Kumaon Railway. (The Rohilkund and Kumaon Railway Company was guaranteed interest at 4 per cent. during construction and received for 10 years thereafter a subsidy of Rs. 20,000 per annum. This ceased in 1894.) While, however, these companies have no guarantee or other direct payment from the Government, they derive some advantage (partly through direct participation in profits and partly through reduction of expenses) from the fact that the working of certain State lines has been entrusted to them, the Tirhoot Railway to the former company and the Lucknow-Bareilly Railway to the latter. Their lines can be purchased by the State in 1932 on terms which are different in respect of the different sections of the lines, but are,

on the whole, much more favourable to the companies than those provided for in the contracts with the guaranteed companies. Failing purchase in 1932, the lines will become the property of the State in 1981 on terms much less favourable to the companies. The general administrative control exercised by the State over these companies and the control over expenditure are similar to that which is exercised, as explained above, over guaranteed companies."

CHAPTER VII.

State *versus* Company Management.

Railways made their first appearance in this world in Great Britain. They were the outcome of private enterprise. There was a great deal of opposition from landlords, canal companies and others against building of railways in that country. The passing of railway bills through both Houses of Parliament and the acquisition of land for railway purposes were no easy matters; and large sums of money had to be spent in these connections. The public opinion in regard to creation of railways was divided, and there was no help from the Government either financially or in the matter of grant of land for railway purposes. Naturally, therefore, railways were made by private capitalists, who yet remain the owners and managers of British railways. But mainly on the ground that the Railway Companies were given monopolistic rights over the roads they built, regulations were made from time to time in order to bring the railways under public control, exercised through the Board of Trade and Railway Commissions (and now by the Ministry of Transport as well), with a view to secure to the public those rights which they could reasonably demand of railways as public carriers. During the past quarter of a century, there have been agitations from time to time with a view to railways being turned from Company lines into State lines, but so far, these endeavours have failed in Great Britain. Railways on the Continent of Europe were in some cases built by the Government, or with the aid of Government, and in other cases by companies, which were in some instances originally

financed by foreign capitalists. And the main reasons for acquisition of company-owned railways by the Government (for example, Railways of Belgium or of Switzerland) were that the people of such countries felt that as the control of foreign companies (owning and managing the railways) extended beyond the Railways, *viz.*, to trade and industries, this was not beneficial to the economic development of those countries.

In U.S.A., the railways were the outcome of private enterprise, and their railroads, which are equal in their length of mileage to the railway mileage of the rest of the world, are the finest examples of what private enterprise can do for a nation in providing works of great public utility, although such works might be created and run mainly for the purpose of earning dividends for the investors.

In Germany, many years before the war, the railways were owned by the Government and worked by the managements, which were strictly those of the Government. They were a great asset to the finances of the old Government in Germany and were worked for developing Germany's trade and industries. Whatever was the fiscal policy of the Government was also the rates policy of the railways, which favoured German industries, German exports and did everything to further the trade and industries of Germany, irrespective of what the financial results might be to the railways themselves.

So far as the British colonies and dependencies are concerned, the railways of South Africa and East Africa, of Australia and New Zealand are state lines, owned and managed by the state; Canada had both company-owned and state-owned railways, and to-day there is the "Canadian Pacific Railway," which like the railways of U.S.A., is company-owned and company-managed, but there

are also the Canadian National Railways which are run on commercial lines by the state.

No railway question has been so much discussed in every country during the past 25 years as the question as to whether company management or state management is the best in the interests of a country. ?

In no country state management or company management of railways has been determined upon, from the point of view of efficiency of one or the other but, truly speaking, each country has state or company-managed railways due to the circumstances peculiar to that country. Where private enterprise was able to finance railways independently of the Government, and when there were prospects of a fair return as dividends on the capital outlay, private enterprise was not slow in putting up money to build railways. In cases where such private enterprise, or rather the capitalists, were indigenous to the country they continued to be the owners and managers of the railways. In those countries where the companies, who made railways were foreign, they were, in some cases, bought out by the Government and in others by capitalists in the country itself but in certain instances, as for example in the case of Argentine Republic, the foreign companies still remain to own and manage the railways. Circumstances peculiar to each country decided the state or company ownership and management of railways; political, economic or military consideration in each case decided for or against state management. As the two great democratic countries like Great Britain and U.S.A., still have company-owned and managed railways, which are fine illustrations of efficiency and continuous improvement, it is now generally held that in democratic countries it is best to have private (*i.e.*, joint stock company-owned) railways, as the

managements of such railways are free from political influences. While not state-owned such railways are sufficiently controlled by the state in the interests of the public; whereas if they were state-owned and state-managed the natural tendency of the Government officials, in the event of inefficient manage ment would have been to try to justify the action of the Government. At present, it is held, the Government have no such interest of their own to induce them to be partial to the railway officials. The Government officials now know that they are only there to control company railways and to see that the public interests are well protected. Even when they have to be on the side of the companies, such action is intended to protect the companies against undue and unreasonable demands of the public which, if complied with, would inflict unnecessary burden on companies, and would thus cripple the power of the companies to do greater good to the community. It h as often been said that democracy and efficiency of state-owned railways are not synonymous. But, in the case of South African Government Railways, it was publicly admitted that in that country state ownership and management of railways had achieved the greatest amount of good, which, it was alleged, would not have been possible with company management or company ownership. The broad features of the South Africa State Railway policy are summed up as follows :—

" Low rates for raw materials of manufacture, agricultural produce, minerals and other raw products of the country, with a view to stimulating agricultural and industrial development ; special low rates for long distance traffic on tapering rates principle; passenger fares substantially low, particularly for suburban and long distance traffic; low distribution rates to afford inland traders equality of opportunity, as regards the railway

tariffs, in competing with coastal merchants for the internal trade."

With the German state railways, and with the state railways of Belgium, the recognised policy before the war was that the railways were to be one of the main instruments of furthering the interests of the industries and trade of the country, and this was their first object, and the earning of money was then not the primary consideration. But unless such a policy is carried out judiciously, state railways may err on the side of yielding to public demands, irrespective of whether they are reasonable or not, and whether or not in meeting such demands the railways are making any profits. And there can but be one end to such a policy, namely financial crisis. When railways are state-owned and state-managed, under the railway ministry of a democratic Government, the result may be that the ministry in the long run thinks it easy to take the least line of resistance, until it finds its finances adversely affected. Commercial enterprise and efficiency of management, economy and discipline may be sacrificed to gain popularity with the members of a responsible legislature, which control the destinies of a Government, and not unoften extensions of Railway service and of railways themselves might be made without much consideration to financial results. When concessions are granted to one locality, to gain popularity with a certain or a certain number of influential or powerful member or members representing such locality, other localities would naturally demand similar concessions and they too could not obviously be disappointed. But if the railways are commercial concerns, subject to a reasonably strict state control, it may be pretty certain that the stability of policy and efficiency would be maintained without any adverse financial results. At the same time

democratic Government can always enforce reasonably strict control over company railways, in order to ensure that public interests are well served and protected. But there is one disadvantage; purely commercial railways will not go to territories which are undeveloped, and would not bring in a good financial result in the near future without substantial aid from the Government, either in the shape of advance of a portion of capital on easy terms or of a guarantee of reasonable minimum dividend on the capital laid out by companies. In such cases, the Government generally reserves the right (and is sometimes compelled to do so owing to financial failure of companies) to purchase the railways eventually, and when the subsidy paid to companies and the purchase money are added together, it is generally seen that the total cost is more than what it would have cost the state to build the railways, out of state funds or from direct state borrowings, from the beginning.

There is again another big problem in connection with state railways. The influence of the labouring classes in democratic countries is getting stronger, and the voting powers of the masses will increase more and more. The railway workmen will have the sympathy of the other members of the labouring classes, and it is feared that in the long run it might lead to workmen demanding more and more wages which, however, if demanded judiciously, would remove inequities of the past, but it is feared that this would not be so. The demand for increased wages might be carried on to such an extent as it would make it no longer possible to run the railways economically, and the result might be that efficient and cheap service, combined with modernly equipped and up-to-date railways, would not be possible; the obvious end of this must eventually be rise in rates and fares to

meet the expenses of railways. Not only this; it is also thought that in the case of non-employment prevailing in a country, owing to depression in trade, the state railways might be called upon to employ more men than they require, and this was found to be the case in the case of German state railways after the war, until they became company railways. On the other hand, the railway technique is advancing rapidly and the railway plant is getting more and more standardised, and then, again, in place of competition between railways, which was at one time regarded to be healthy to trade and industries, combination is getting more common (and this is very apparent from amalgamations and grouping of railways). On the principle that when business outgrows the capacity of private individuals it passes into the hands of joint-stock companies, it follows that when the business becomes bigger still and extends over a very big area the intervention of public authority becomes essential. Whether this public authority could be made more effective by state management or by state control, through commissions or trade boards or railway boards of a Government, is a matter on which it would be most difficult to pass any decided opinion at the present moment when the railways in many of the great countries are passing either through a process of evolution or of revolution in the matter of internal management (Executive and Administrative), and as regards railway rates, Government control and financial policy. But the fact remains that while, on the one hand, there is demand on the part of the users of railways, or the public and the working classes, to nationalise the railways and to run them as state concerns, the financial conditions and considerations, on the other hand, are making it quite clear that if railways are to be efficiently run and have to

provide for cheap rates and fares, and are to be saved from bankruptcy, they should either be managed by companies or run by the state on a purely commercial basis, *i.e.*, with efficiency and economy. Then only they would be able to earn a reasonable return on the capital outlay, which would enable railways to pay interest on borrowed capital or loans, to save money to create depreciation funds to allow of repairs and renewals being carried out without further borrowings, and also to create sinking funds, where loans have to be redeemed.

Some think that amalgamation of railways is the first step towards nationalisation of railways, *i.e.*, amalgamation would eventually lead to nationalisation. Amalgamation and grouping of a large number of railways avoid many of the wastes, such as for instance, running of trains by parallel routes of competing railways, without there being the necessity for such trains from the point of view of overflowing traffic from one of the routes going over to the other. Moreover, when contiguous railways are brought under one control, the public benefit by long distance trains which also effect economy in working costs, and enable carriages to be employed in working traffic for a longer journey ahead, instead of being kept standing at junctions for return trips after comparatively shorter runs. The passenger fares and goods rates, on a tapering basis, are quoted over longer distances over the amalgamated railway system, which naturally means lower rates and fares. Uniformity of working is rendered more easy along with standardisation of rolling stock, plant and equipment. Delays to traffic at junction stations of two railways, due to the process of taking over and making over goods wagons, small consignments and parcels, are avoided. These are some of the advantages that are aimed at by the public when they ask for nationalisation of railways,

but it has been seen, both in Great Britain and in the United States, that such advantages can also be secured by means of co-operation between and amalgamations of railway systems owned by companies. Moreover, the interest in railways is becoming international, and as regards uniformity of working and standardisation of rolling stock, plant and equipment a great deal is being achieved by the International Railway Congress Association, in which Company Railways have played a great part in the past. It is thus believed that if a Government were to concentrate its energies in protecting the interests of the public against unreasonable actions of joint stock railway companies, the Government would render far better service to the community, than if the Government were to engage in the business of running commercial concerns, such as railways, which, some say, had better be left to private enterprise ; because state officials can hardly get rid of red-tapism. Though it is admitted that a state can find better educated and abler men to join state service, because of prestige and security of service, it is held, on the other hand, that it is this security of service and promotion mainly by seniority that are the causes that take away incentive and initiative from the officers and employees of a state railway. In the case of commercial concerns, promotion by sheer ability and merit or on good results shown, and more pay for deserving men are great incentives to the employees to do their best for their employers, and as a railway can only hope to prosper by meeting the requirements of the public and by working in the interests of the community they (the railways) serve it generally follows that in endeavouring to do their best for their employers the railway employees also do the best also for the public.

So far, the general aspects of the question relating to

State *versus* Company management of railways have been discussed, and it would perhaps be proper now to start with the Indian railways and to deal with particular points that affect them.

Indian railways, as already stated, were first started by joint stock companies of British domicile. Thus it was private enterprise that built the first railways of India, and more railways were built by railway companies in India than by the Government, but from the beginning such companies did not take that amount of risk which is generally undertaken by commercial enterprise. The railway companies that built the railways of India asked for and were given free gifts of land (*i.e.*, the ownership of land was that of the Government and the guaranteed companies' capital outlay did not include the cost thereof) and a specific guarantee of 5, 4 or 4½% minimum dividend. This latter concession led to company officials becoming less keen in making and working railways economically (because companies were made secure by the guarantee of a minimum dividend) than such officials would have been, had they not had this feeling of security against any loss to their employers. Therefore, in the later agreements, which were made with new companies, or with the old companies, after the old companies had been bought out by the Government and the railways were leased back to companies for purposes of working, the minimum guarantee was reduced to 2½, 3 and 3%. Then the companies could only get a higher profit by sharing a portion of the surplus profits (which were available after meeting all expenses) with the Government. And thus incentive was given to companies to earn more money for railways and to economise in working and building railways.

The railways were acquired by the Government after 25, 30 and 50 years, and, in most cases, payments were

made by systems of annuities, and a premium of 20 or 25%, over and above the real value of the railway, was included in the total money payable to the old guaranteed companies for the purchase of railways. After the acquisition of railways by the state, the responsibility for finding funds for further expenditure became that of the Government of India and of the Secretary of State. The railways became the absolute property of state, and naturally Government control over such railways became more rigid. It will thus be seen that, so far as ownership of railways by Government was concerned, nationalization of railways in India was effected a long time ago, although most railways were left to be worked by lessee companies. A few were, however, retained by the state for management by direct state agencies. But this did not meet with the wishes of the Indian public, and they asked for state management of Indian state-owned railways on the ground that since the railways were owned by the state (and therefore by the Indian taxpayers) there were no reasons for employing companies to work them, and that the railways should be managed by the real owners (*i.e.*, through direct state agencies). It is true that a small part of the capital was yet held by railway companies, but it was noted that the Government, which was $\frac{4}{5}$th owner, should not entrust the management to the $\frac{1}{5}$th owner—the company—and share surplus profits with them. But, on the other hand, another section of people interested in and using the Indian Railways, mainly the European mercantile community of India, and some Indians as well, were of opinion that the sharing of the surplus profits was not such a loss to the Government as compared with what the loss would eventually be by lack of incentive and want of initiative on the

part of the managers of railways, when they come to be run by the state, and that in the long run the nett profits of the railways might diminish and efficiency might be sacrificed.

The whole question was examined by a Railway committee, appointed by the Secretary of State for India, and it was presided over by the late Sir William Acworth, once a great apostle of company management ; but it was his view and also of some of his colleagues that taking into consideration the special circumstances of the case it would be much better that the Indian state-owned railways should be managed by the state. They arrived at this conclusion after taking most exhaustive evidence both in India and in England (unofficial and official). The late Sir William Acworth was supported by four other members, but the rest five decided in favour of company management ; so the committee was divided equally in their opinion.

The late Sir William Acworth, and those who shared his views, stated that they did not find that there was any difference between the managements of Indian state railways by direct state agencies and of company-managed state railways, and the Railway Board also admitted this, but those who held the opposite views declared that the existence of state-managed and company-managed railways side by side in India gave the state-managed railways the incentive to keep their managements up to the mark so as not to be below the standard of the company-worked lines. It was, however, pointed out by the supporters of state management of Indian railways that the company management of Indian state railways was not the same as the company management of railways of Great Britain or of U. S. A. In the latter countries, the railways were the absolute property of the companies

while in the case of Indian railways the property belonged to the state, and for this reason the state controlled the finances and the expenditure ; and money for improvements, additions and alterations came from the Government, or through the help of the Government. Thus the companies in India could not undertake any expenditure to effect improvements in service or in earnings on its own initiative until or unless the Government sanctioned, and were in a position to sanction, the expenditure and provided funds. And thus the real incentive of commercial enterprise was entirely lost in the case of companies that were managing the Indian railways. That this was true to a great extent could not be denied, but, on the other hand, it was also said to be possible that as the companies looked for better profits they were able to place before the Government such profitable proposals and schemes which acted as inducements to the Government to consider them favourably.

It was further contended that the railway companies would serve the interests of the public better by trying their best to develop the traffic, but the Indian public bodies held the view that the policy of the Indian railways in the past had been to encourage exports of raw materials to foreign countries and imports of foreign products by favourable rates to and from the ports. It was clear, however, that this was not due to any specific design or motive on the part of the railway companies (because they were foreign companies) to encourage the export and the import trade in preference to internal traffic. But it was apparent to a certain extent that in the case of railways (whether worked by the state or by companies), which were run as commercial concerns, the main object was to earn money, and that, this being the case, as traffic to ports gave the railways long leads, concentrated

wagon and train loads, and since imported traffic assisted to obtain loads for empty wagons returning from the ports, the natural tendency of the railways would be to encourage such traffic, in preference to traffic, which was not port traffic, *i.e.*, internal traffic carried for comparatively shorter distances. The object of the state railways, it was argued at the time, should be to work on the same lines as on which the German state railways were working at the time, *viz.*, the first and primary object of state railways should be to improve the economic condition of the country and not to look mainly for profits. But since then the policy of the German railways has been altered, and the same has happened to railways in other parts of the continent of Europe, mainly because of financial crisis, and the altered policy is said to be summed up as follows :—

" The primary object of railways should be to so fix the rates and fares as to earn a reasonable dividend on the capital outlay, without of course impeding the progress of the economic condition of the country so long as this could be done without loss of a reasonable return to the railway on its investment."

It was once observed, many years ago, that the interests of a railway company and those of the Government were not identical in many respects. It was pointed out that while a company might be content to earn 30,000 pies (Rs. 156-0-0) by carrying 10,000 passengers at 3 pies per mile, the Government, which would be naturally interested in seeing that railways were made useful to as large a number of people as state railways could serve, might allow 30,000 pies to be earned by carrying 30,000 passengers at 1 pie per mile, if the railway could afford this without incurring loss or seriously minimising the profits. It was, however, eventually accepted that as high rates and high profits were not synonymous, and since low profit

per unit, repeated several times on a larger volume of business, meant in the long run a larger aggregate nett gain than lesser business at high rates, it would not be to the interests of a railway company to charge such rates and fares as would impede or impair the development of the railway business.

The Indian public opinion against company management of Indian railways was mainly based on the ground, that state management would be more amenable to Indian public opinion than company management would be, and that as the state was the owner of railways the public should reap the full advantage of the Indian railways in the matter of making them useful to develop India's resources and economic condition to their fullest extent, by grant of more favourable rates to Indian enterprise, local trade and Indian industries, and by Indianising the higher railway services. At the time the Acworth Railway Committee made its investigations it was possible to shew that more Indians were employed in the higher services of the state-worked state railways than there were in the service of the company-worked state railways. The defence of the companies was that as Indians were found suitable they were being employed in the higher services, and that the company railway policy in this respect was changing on the side of more Indianisation; the companies argued that in the past the absence of Indians in the higher services was not on the ground of racial prejudices but on account of efficiency. Sir William Acworth and those of his colleagues, who agreed with his views, held that as the railways were owned practically by the Indian tax-payers it was not unreasonable that the Indian public should demand Indianisation of the higher services and that the evidence before the Committee showed that this had been more possible in the case of state-worked state

railways than in the case of company-worked state railways. In Germany, even under the present company management, no permanent employee, is allowed to be in Railway service unless he is a German. The bulk of Indian public supporting state management laid stress on the point that state railways were more useful in furthering the national interests of Indians than company lines could be. The supporters of company management practically held the view that as the country became more democratic and the masses came into more powers, undue influence might be brought to bear from the political side in connection with railway internal management, which might result in inefficiency and want of discipline and loss in railway earnings, which would reduce the powers of a railway to do good to the country.

The Acworth group of the Railway Committee (consisting of the late Sir William Acworth and four other members) recommended state management of state-owned railways in India and the rest (*viz.*, the other five members) supported company management and suggested that there should be, in future, companies of Indian domicile, but the strongest argument against such company management was that they would not be companies in any real sense of the word because the greater part of the finances would be those of the Government and that, therefore, the control of the Government would remain as rigid as before, so that the real benefit of commercial and private enterprise would be lost. Both the recommendations were placed before the Indian Legislative Assembly, who by a great majority of votes declared in favour of state management. The Government of India and the Secretary of State for India, acting on this recommendation, took over the two great railway systems, the G. I. P. Railway and the E. I. Railway, under direct state management,

on the expiry of their contracts with the companies, and the Government were thus able to effect the amalgamation of O. & R. Railway (a state railway) with the E. I. Railway, which, it is expected, would lead to good results in the long run, although it must be pointed out that so far one of the main advantages of one ownership and management, *viz.*, the application of tapering scales of goods rates on through distances over the E. I. R., and the O. & R. R., has not yet come. But when the G. I. P. Ry., and the Indian Midland Railway were amalgamated this advantage was given to the public very soon.

The Acworth Railway Committee also unanimously recommended the separation of the railway budget from the general budget, and this change has already been effected. *Vide* Chapter I of this book.

It may be useful to mention here that in the contract of the newly formed company, which has taken over the German state railways and is managing them as commercial concerns, the following clause appears:—

"The rights of supervision and control of the operation and tariffs of the Railways reserved to the Government by the present law shall never be so exercised by the Government as to prevent the Company earning a net revenue adequate to secure the regular payment of interest and sinking fund on the bonds and the preference shares."

A railway or railways of a country are the arteries of trade and industries, and the flow of traffic through them should be even and continuous, and this can only be done if the management is efficient and the rates and fares are reasonable. Interference and control of Legislature over Railways of a country are essential so long as they are in public interests, and do not tie the hands of the managers too tightly, whether the railways are company-owned or

state-owned. But when the railways are state-owned the Legislature in a democratic country is naturally responsible both for efficiency in management and for their finances; and they are again required to see that the safety of the public and the charges to the public are fair and reasonable. If these can be attained by state railways which are already there, it is surely the best, but if company ownership of a purely Indian character, can at any time develop and purchase the Indian State Railways and give efficient service and cheap rates and fares it would be equally good, because it would make the Indian people more enterprising and self-reliant, so long as such companies do not ask for any subsidy from the Government either in the shape of free gift of land or a guarantee of minimum dividend, but such companies should be Indian-owned and Indian-managed, and until such a thing comes state management of state railways is the best.